Operating Instructions

Video Cassette Recorder

NV-HD670 Series

G-CODE

VHS PAL NTSC

SUPER DRIVE MULTI-INTELLIGENT CONTROL

Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT7109

Dear Customer

Thank you for purchasing this Panasonic Video Cassette Recorder.

We strongly suggest that you carefully study the Operating Instructions before attempting to operate the VCR, and that you note the listed precautions.

G-Code Programming System

Programming is now easier than ever; simply enter the G-Code number found in the programme scheduling pages of newspapers and magazines.

- G-CODE is a trademark of Gemstar Development Corporation. The G-CODE system is manufactured under license from Gemstar Development Corporation.

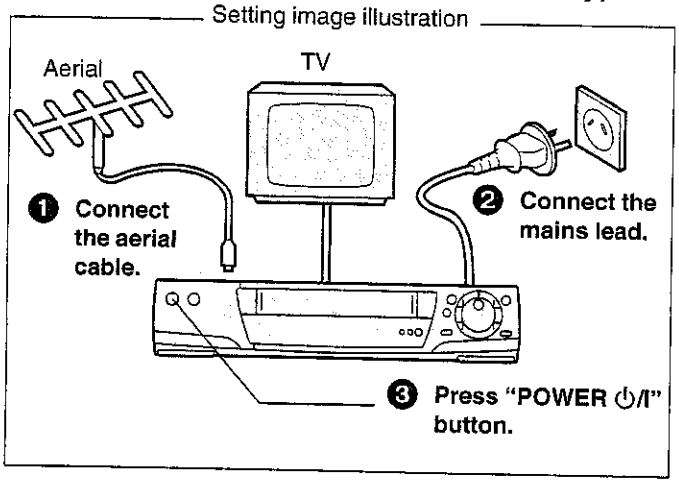
AI Crystal View Control

The AI Crystal View Control optimizes playback characteristics.
An AI circuitry automatically judges and controls the relationship between the tape and heads, bringing out the maximum performance of each. The result is consistently optimum picture quality for playback.

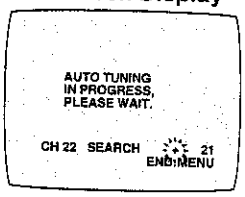
The illustrations shown in the operating instructions apply to model no. NV-HD670A.

Plug in Auto Tuning (NV-HD670EA only)

Setting image illustration



On Screen Display



Plug in Auto Tuning is completed.

All broadcasting stations that can be received in the area are automatically tuned and stored in memory.

- Don't turn off the VCR halfway. (See pages 10–11.)

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

NV-HD670A: Australian model
NV-HD670EA: New Zealand model

As this equipment gets hot during use, operate it in well ventilated place; do not install this equipment in a confined space such as a book case or similar unit.

FOR YOUR SAFETY

■ **DO NOT REMOVE OUTER COVER.**
To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

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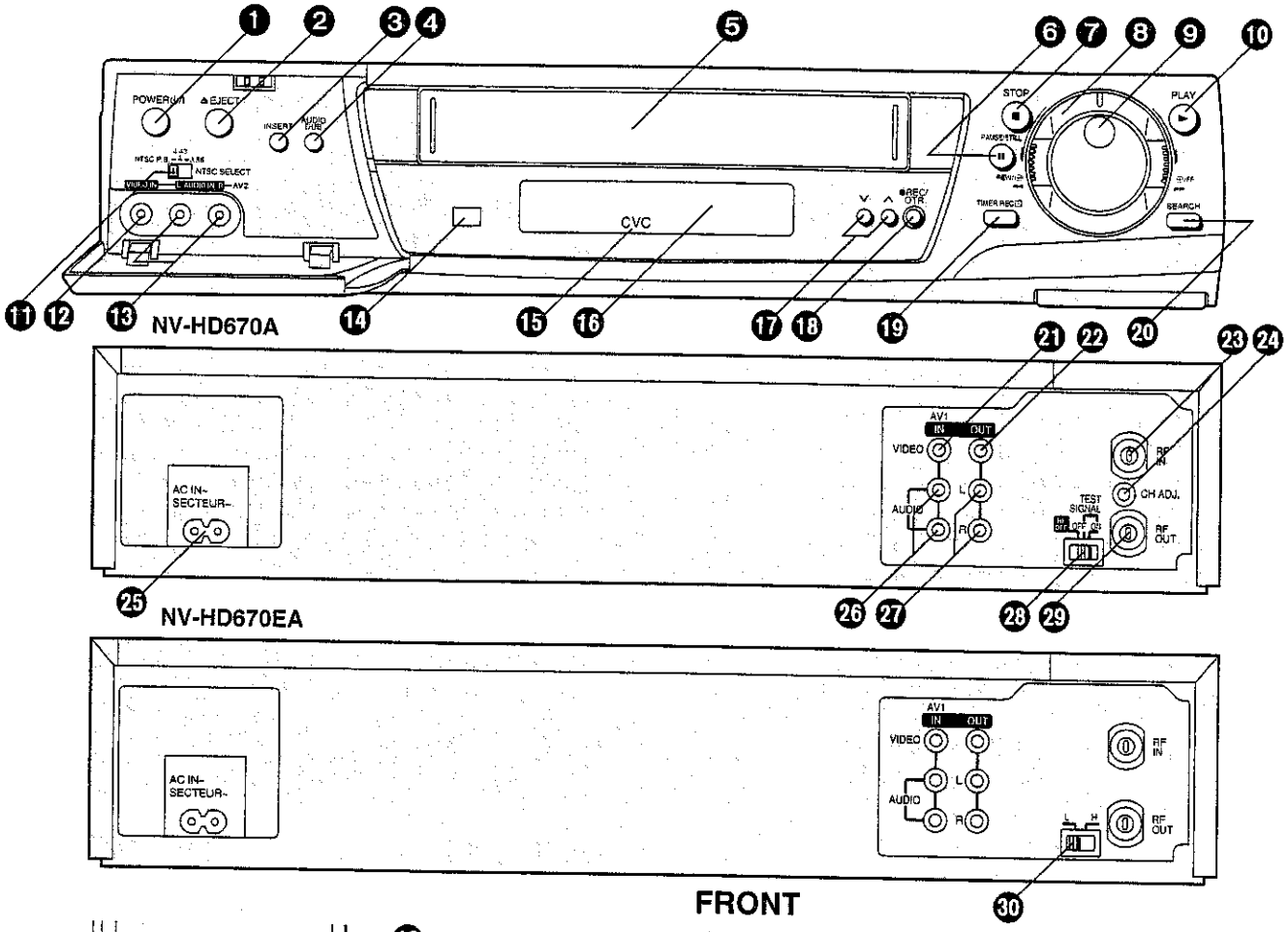
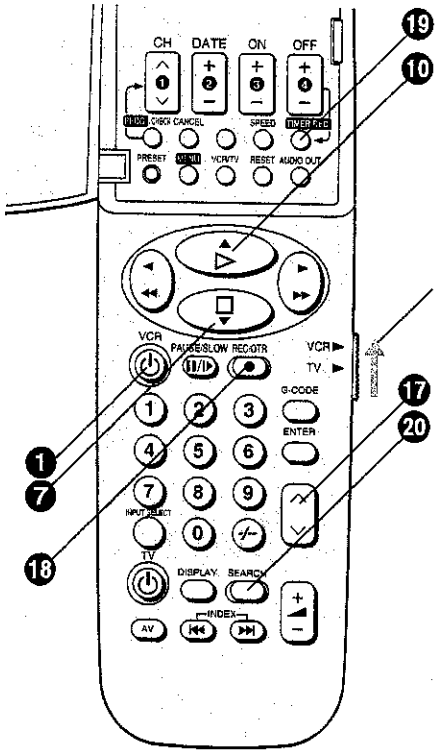
Controls and Connection Sockets

This section describes in detail the function of each button, switch and connection socket.





Set **VCR/TV** switch to **VCR** for using ∨ ∧.

FRONT

❶ **POWER ⏻/I (VCR ⏻)**
Press to switch the VCR from on to standby mode or vice versa. In standby mode, the VCR is still connected to the mains.

❷ **EJECT**
Ejects a video cassette.

❸ **INSERT**
Sets up the VCR for insert editing.
INSERT is appeared on screen display.

❹ **AUDIO DUB**
Sets up the VCR for audio dubbing.
A.DUB is appeared on screen display.

❺ **Cassette Compartment**
Insert a video cassette here.

❻ **PAUSE/STILL**
In the stop mode: Still picture (Jog/Shuttle mode).
During playback:
- By pressing: Still picture. "▯▯" is lit. (Jog/Shuttle mode)
- By pressing for 2 seconds or more: Slow playback. "▯▷" is lit.

During recording: Interrupts recording.

❼ **STOP**
Stops any playback or recording.
Ejects the video cassette.

⑧ Shuttle Ring
In the stop mode: Rewinds or fast forwards the tape.
In the playback mode:
Searches picture backward or forward.
In the still playback mode:
Adjusts playback speed backward or forward.
In the rewind or fast forward mode:
Obtains high speed picture.

⑨ Jog Dial
Locates any desired frame with utmost precision.

⑩ PLAY
Starts playback.
"▷" is lit.
For the repeat playback function.

⑪ NTSC SELECT
Set according to the colour TV system.
NTSC P.B.: For TVs that can receive PAL signals. The output signal is the quasi-PAL system.
4.43: When receiving NTSC 4.43 signals. For TVs that can receive NTSC 4.43 signals.
3.58: When receiving NTSC 3.58 signals. For TVs that can receive NTSC 3.58 signals.

⑫ VIDEO IN (AV2)
Connects a video cable from a movie camera or another unit.

⑬ AUDIO IN (AV2)
Connects an audio cable from a movie camera or another unit.

⑭ Infra-red Remote Control Receiver Window

⑮ CVC (Crystal View Control) Indicator
This indicator is lit when the VCR is on.

⑯ Display

⑰ ∨ ∧
Selects the required programme position (TV station) of the VCR.
For tracking adjustment and vertical locking adjustment.
- For manual tracking adjustment
  The ∨ and ∧ buttons are used to adjust the tracking when, for example, noise bars on the picture during normal playback are better removed manually than by automatic digital tracking control. To return to automatic digital tracking control, press both buttons together.
- For slow tracking adjustment
  When noise bars appear during still or slow playback, switch over to slow playback and adjust with the ∨ or ∧ button to reduce the noise bars.
- For vertical locking adjustment
  Use the ∨ and ∧ buttons to minimize any vertical jitter during still picture playback.

Set **VCR/TV** switch to **VCR** for using ∨ ∧ of remote controller.

⑱ REC/OTR
Starts recording.
For One-Touch Recording (OTR).

⑲ TIMER REC
Turns the timer recording function on and off.
◳ is lit or not lit.
Once you operate the timer recording function, normal VCR operation is not possible unless you press this button again and release the VCR from the timer recording standby mode.

⑳ SEARCH
Searches a recorded programme using the programme list search after timer recording and using the intro-jet scan functions.

REAR

㉑ VIDEO IN (AV1)
Connects a video cable from a movie camera or another unit.

㉒ VIDEO OUT
Connects a video cable to a TV or another unit.

㉓ RF IN
Connects the external aerial.

㉔ CH ADJ. (NV-HD670A only)
Adjusts RF transmitting channel AU31–43.

㉕ AC IN~
Connects the main power supply.

㉖ AUDIO IN (AV1)
Connects an audio cable from a movie camera or another unit.

㉗ AUDIO OUT
Connects an audio cable to a TV or another unit.

㉘ RF OFF/TEST SIGNAL (NV-HD670A only)
RF OFF: Set to this position when the VCR is connected to the TV via the Audio/Video cable.
TEST SIGNAL OFF:
Set to this position when the VCR is connected to the TV via RF coaxial cable only.
TEST SIGNAL ON:
Set to this position when tuning the TV into the VCR. The test signal is transmitted on channel AU37 initially.

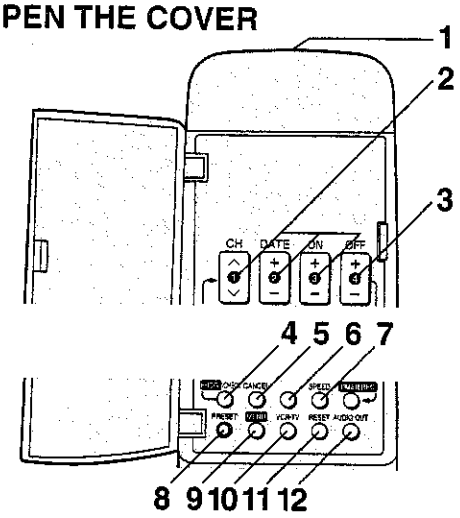
㉙ RF OUT
Connects the aerial terminal on a TV.

㉚ Video Playback Channel Selector (NV-HD670EA only)
Selects the video playback channel.

Infra-red Remote Controller

The remote control unit for this VCR is a universal remote controller. As such, some of its buttons are not used to operate this VCR.

OPEN THE COVER



1 **Infra-red Transmitter**

2 **CH, DATE, ON**
Programmes timer recording.

3 **OFF**
Programmes timer recording.
Sets the remote controller for operation of the TV.

4 **PROG./CHECK**
Sets and checks timer programmes.

5 **CANCEL**
Cancels the settings made for timer recording.

6 No function.
This button is not used to operate this VCR.

7 **SPEED**
Selects the desired tape speed for recording.
SP gives the best picture quality.
LP (EP) gives the longest recording time.
- The indicator (SP, LP or EP) corresponding to the selected tape speed now appears on the VCR display or on screen display.

LP: This appears when PAL signals are input or output.
EP: This appears when NTSC signals are input or output.

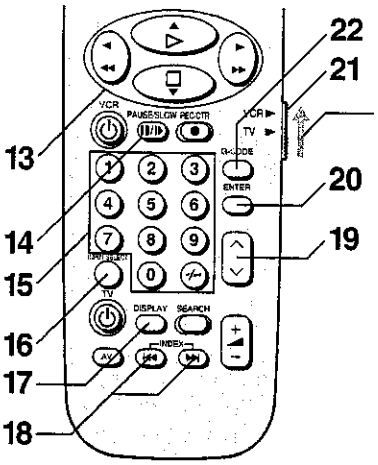
8 **PRESET**
Sets the remote controller for operation of the TV.

9 **MENU**
Makes the on screen display main menu appear on the TV screen.
- The buttons with the green characters are ones which are used for the on screen display menu operations.

10 **VCR/TV**
Selects the VCR mode or TV mode.
(NV-HD670A: No function.)

11 **RESET**
Resets the tape counter (elapsed time) to "0:00.00".
- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

VCR OPERATION



Set **VCR/TV** switch to **VCR** for using ∨ ∧ and the **numeric buttons**.

12 **AUDIO OUT**
Selects the desired sound mode.
For each push of this button, the audio output mode changes as follows.

→Stereo→L→R→Normal audio track→

The Left (L) and Right (R) indicators show which sound mode is selected as follows on the On Screen Display.
Stereo: Both the L and R indicators appear.
L: The L indicator appears.
R: The R indicator appears.
Normal: Neither the L nor R indicator appears.

13 **▷ (PLAY)**
Starts playback.
"▷" is lit.
For the repeat playback function.

◀◀ (REW)
In the stop mode: Rewinds the tape.
In the playback mode: Searches back.
In the rewind mode: Obtains a high speed picture.
"◁◁" is lit.

▶▶ (FF)
In the stop mode: Fast forwards the tape.
In the playback mode: Searches forward.
In the fast forward mode: Obtains a high speed picture.
"▷▷" is lit.

□ (STOP)
Stops playback or recording.
Ejects the video cassette.

▲ ▼ ◀ ▶
Makes selections from the on screen display.
- The buttons with the green characters are ones which are used for the on screen display menu operations.

14 PAUSE/SLOW

During playback:

- By pressing: Still picture. "▯▯" is lit.
- By pressing for 2 seconds or more: Slow playback. "▯▷" is lit.

During recording: Interrupts recording.

15 Numeric Buttons

Selects programme positions (1–99) of the VCR.

- Ensure that **VCR/TV** switch is set to **VCR**.

9: (9)

19: (-/--) → (1) → (9)

Programmes G-Code numbers.

- Ensure that **VCR/TV** switch is set to **VCR**.

16 INPUT SELECT

Selects the A1 or A2 external recording source.

17 DISPLAY

Changes the indication on the VCR display or on screen display as follows.

→Clock→Counter→Remaining Tape Time→

18 INDEX

Used for the index search function.

19 ∨ ∧

Selects the required programme position (TV station) of the VCR.

- This button can also be used for tracking adjustment and vertical locking adjustment.
- Ensure that **VCR/TV** switch is set to **VCR**.

20 ENTER

Confirms the selection, or stores.

- The buttons with the green characters are ones which are used for the on screen display menu operations.

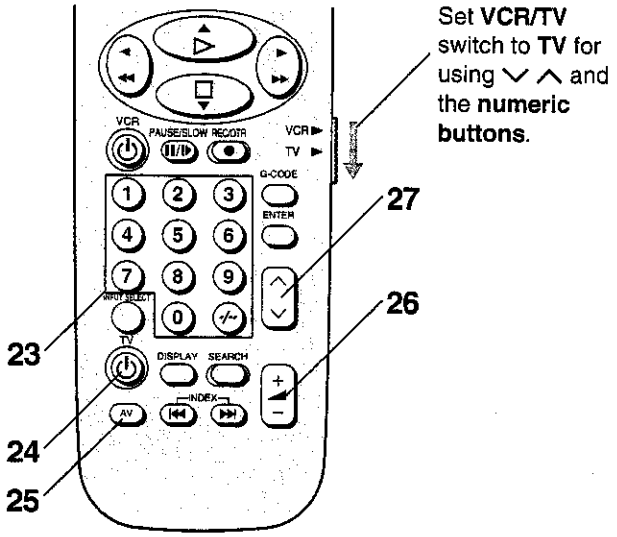
21 VCR/TV switch

VCR: Selects the VCR operation mode.
TV: Selects the TV operation mode.

22 G-CODE

Used for G-Code programming.

TV OPERATION



Set **VCR/TV** switch to **TV** for using ∨ ∧ and the **numeric buttons**.

23 Numeric Buttons

Selects programme positions (1–99) of the TV.

- Ensure that **VCR/TV** switch is set to **TV**.

24 TV

Press to switch the TV from on to standby mode or vice versa. In standby mode, the TV is still connected to the mains.

- With some TV models, it may only be possible to switch the TV to the standby mode using this button. In this case, use **AV**, the **numeric buttons** or ∨ ∧ to switch the TV on.

25 AV

Selects TV input.

26

Adjusts the volume of the TV.

27 ∨ ∧

Selects the required programme position (TV station) of the TV.

- Ensure that **VCR/TV** switch is set to **TV**.

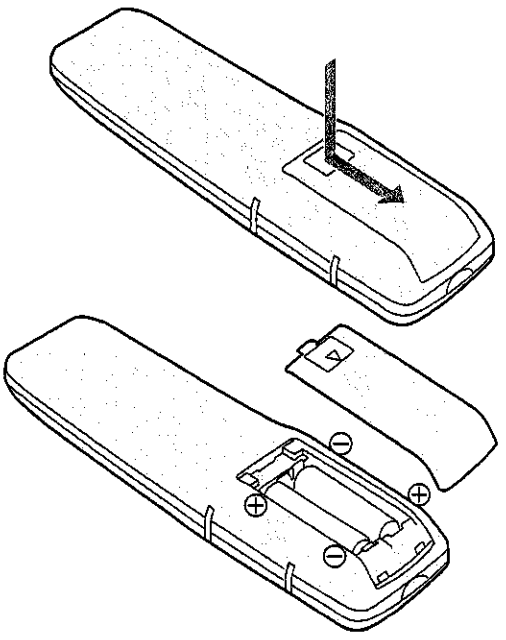
Power Source for the Remote Controller

The remote controller is powered by 2 "AA", "UM3" or "R6" size batteries. The life of the batteries is about one year, although this depends on the frequency of use.

Precautions for Battery Replacement

- Load the new batteries with their polarity (⊕ and ⊖) aligned correctly.
- Do not apply heat to the batteries, or an internal short circuit may occur.
- If you do not intend to use the remote controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new battery together, and never use an alkaline battery with a manganese battery.

Installing the Batteries



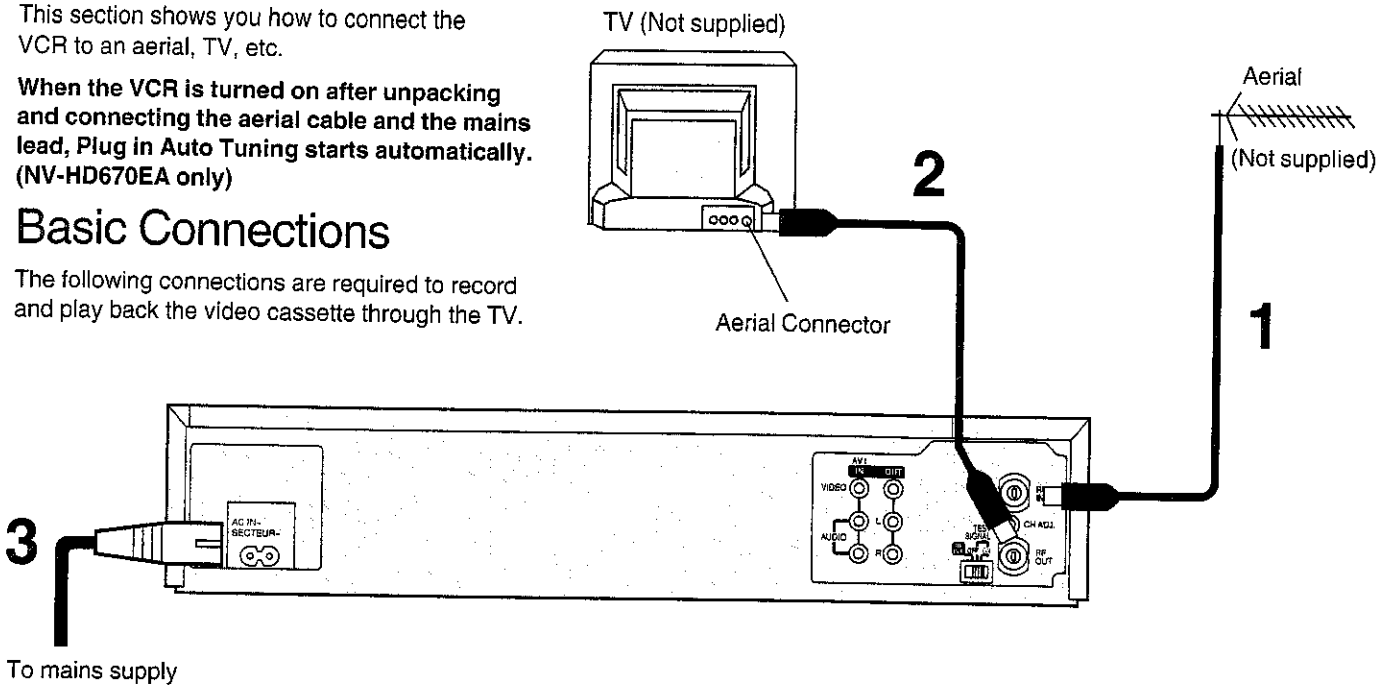
Connections

This section shows you how to connect the VCR to an aerial, TV, etc.

When the VCR is turned on after unpacking and connecting the aerial cable and the mains lead, Plug in Auto Tuning starts automatically. (NV-HD670EA only)

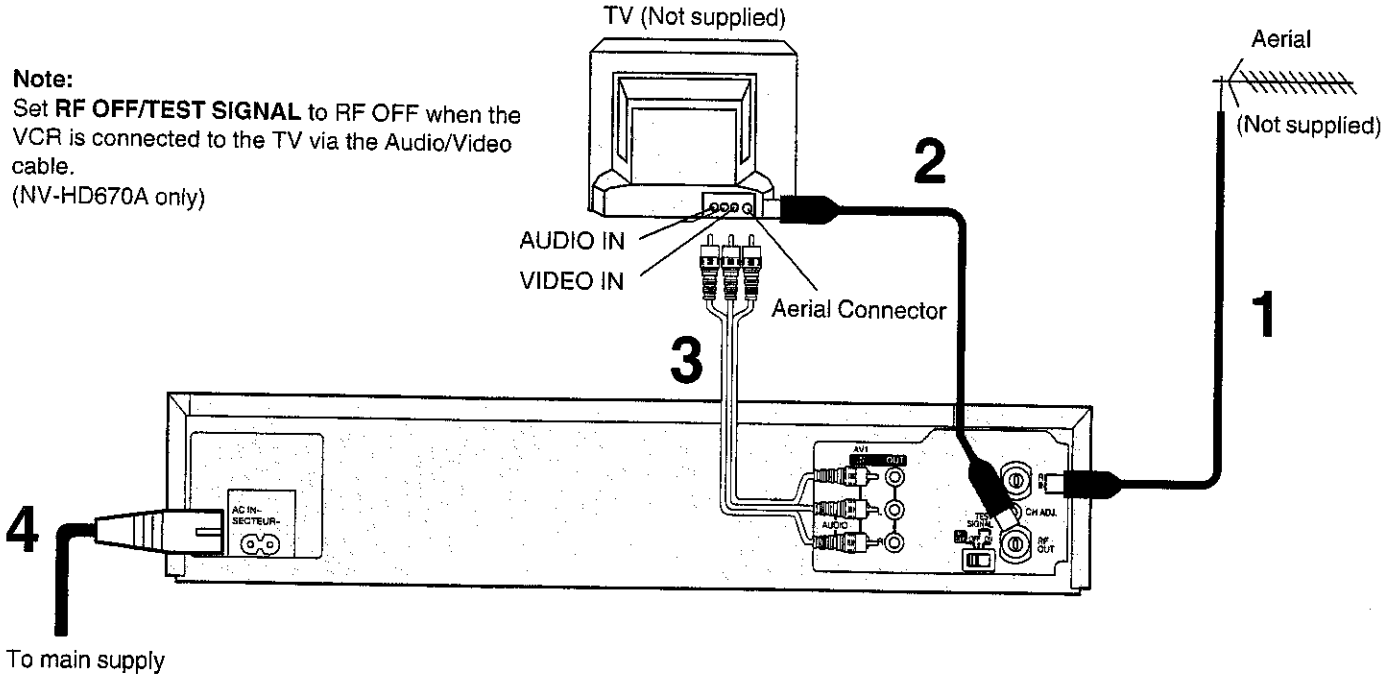
Basic Connections

The following connections are required to record and play back the video cassette through the TV.

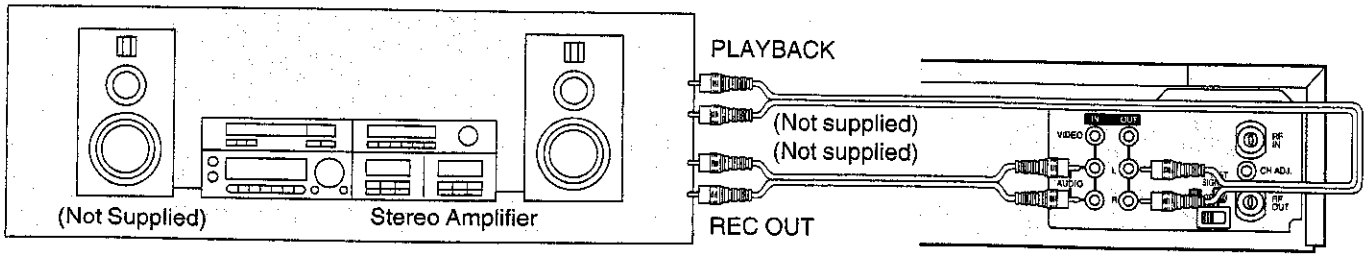


Connection to a TV using the Audio/Video Input Sockets

Note:
Set **RF OFF/TEST SIGNAL** to RF OFF when the VCR is connected to the TV via the Audio/Video cable.
(NV-HD670A only)

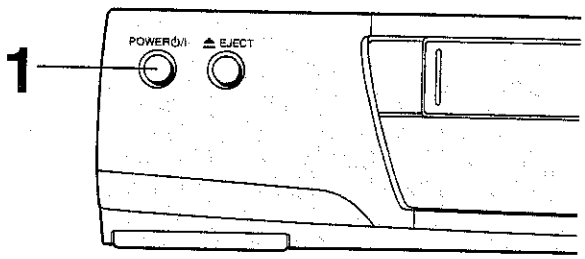


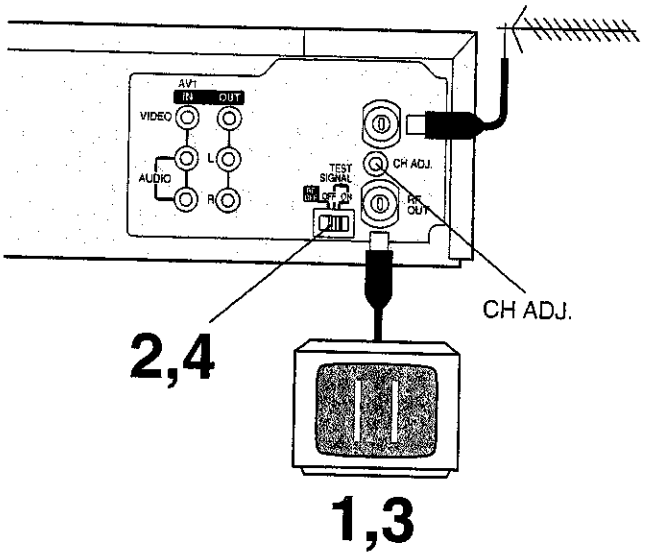
•Connection to a Stereo Amplifier



Tuning the TV to your VCR

NV-HD670A





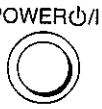
The VCR supplies a signal to the TV via the RF coaxial cable on channel AU37.

It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.

If you have connected the VCR to the TV through the video and audio input sockets, then you do not need to follow the procedure below.

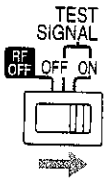
Operations

1



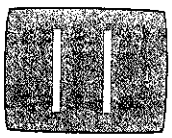
Turn on the TV and the VCR.

2



To generate a test pattern, set **RF OFF/ TEST SIGNAL** to ON.

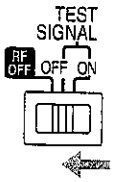
3



Set the TV to an unused position which you wish to use for your video playback.

- Tune the TV until the test pattern appears on the screen.

4



Set **RF OFF/TEST SIGNAL** to OFF.

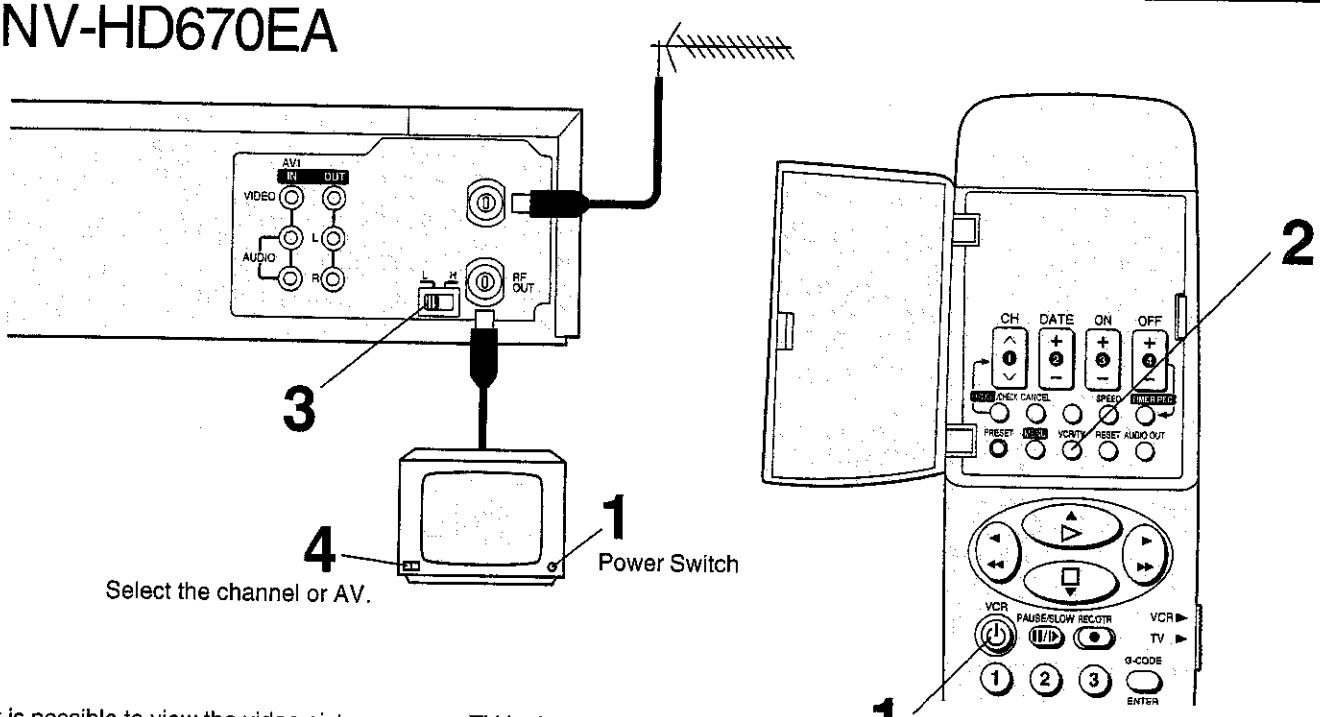
Note:

The test signal is transmitted on video channel AU37. If you are encountering interference from a TV broadcast on this video channel, you may readjust to another free channel (AU31–43) by turning the **CH ADJ.** screw located on the rear of the VCR.

When rotating the **CH ADJ.** screw, take care not to turn it too far.

Note that if the **CH ADJ.** screw is used, then you will have to retune your TV to the test signal following steps **2–4** above.

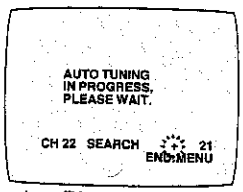
NV-HD670EA



It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.

If you have connected the VCR to the TV through the video and audio input sockets, then you do not need to follow the procedure below. Instead, simply select the AV mode on the TV.
When the VCR is turned on after unpacking and connecting the aerial cable and the mains lead, Plug in Auto Tuning starts automatically.

Notes:
- If the VCR is turned on with the antenna not connected, all channels are skipped. Therefore, firmly connect the antenna and then turn the VCR off and on again to execute Auto Tuning.
- When Auto Tuning is canceled halfway, Auto Tuning is not executed even if the VCR is turned off and then turned on again. In this case, see page 11 **"To restart Plug in Auto Tuning"**.

Operations	Display Symbol	
1	VCR	Turn on the TV and VCR. Ensure that the VCR is connected to the aerial cable. ●Auto Tuning starts. (See next page.)
2	VCR/TV	 Select the VCR mode.
3		Select the video playback channel not used for any TV station. H: Channel 3 L: Channel 2
4	**On Screen Display**  (During Plug in Auto Tuning) (After Plug in Auto Tuning)	Select a programme number on the TV which you wish to use as the video viewing channel. Then tune in the TV to the picture from the screen being auto tuned or the screen selected with the ∨ and ∧ of the VCR. ●During Auto Tuning, the TV programme screen does not appear, and the Auto Tuning screen appears instead.

Storing TV Broadcasts in your VCR

Pre-programmed TV Channels (NV-HD670A only)

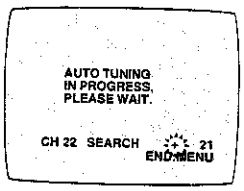
The local TV broadcast channels 2, 7, 9, 10 and 28 are factory-preset in this VCR. That is, if you can receive television broadcasts on VHF channels 2, 7, 9, 10 and UHF channel 28, these are already tuned on the programme positions with the matching numbers. However, it is possible to cancel these settings and tune the local TV broadcast channels to any desired programme position.
For alternative settings and tuning of additional TV broadcast channels, follow the Tuning Operations.

Plug in Auto Tuning (NV-HD670EA only)

The VCR is fitted with its own tuner (just like a normal TV) and can be preset to receive up to 99 TV broadcast stations.

When the VCR is turned on after unpacking and connecting the aerial cable and the mains lead, Auto Tuning starts automatically.

On Screen Display



Auto Tuning searches for TV stations from VHF minimum to UHF maximum and memorizes every tuned programme position.

- If the VCR starts playback during Auto Tuning, Auto Tuning will stop halfway.

To Cancel Auto Tuning Mid-Operation:

Press **MENU** during Auto Tuning. This has the effect of canceling Auto Tuning. Another way to cancel it is to press **POWER** ⏻/I: in this case, however, the VCR is turned off.

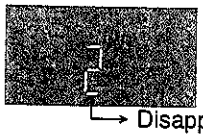
To restart Plug in Auto Tuning:

1 Press **EJECT** and remove the video cassette.

2 Keep ∨ and ∧ on the VCR pressed simultaneously for 3 seconds or more during the VCR on.

- The channel displayed on the VCR display disappears for a moment then changes to 1.

Display Symbol



3 Turn off the VCR and then turn it on.
- Auto Tuning commences.

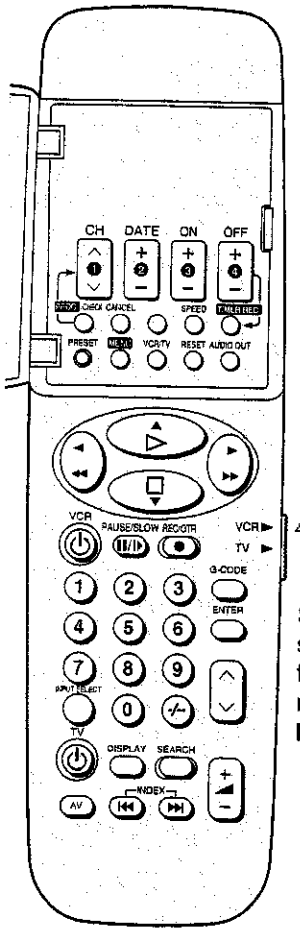
Auto Tuning Using the On Screen Display

Introduction

The VCR is tuned automatically by plug in Auto Tuning. However, Auto Tuning using the On Screen Display should be performed according to the following method if necessary.

Preparations

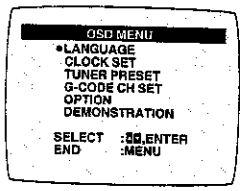
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR and select any programme position except A1 or A2.
- Press **VCR/TV** to select the VCR mode. (NV-HD670EA only)



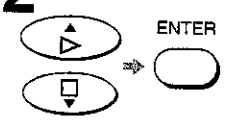
Set **VCR/TV** switch to **VCR** for using the **numeric buttons**.

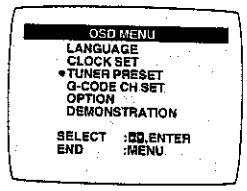
Operations	On Screen Display

1 Press **MENU**.



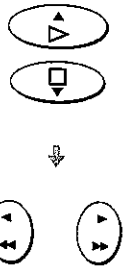
2 Select **TUNER PRESET**.

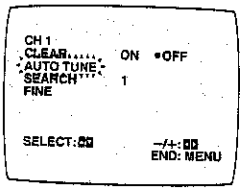


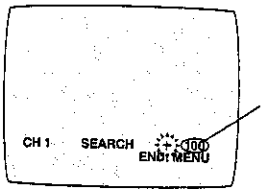


3 Select **AUTO TUNE** and press ◀ or ▶.

- When Auto Tuning is completed, the on screen display disappears and programme position 1 is selected.







The number displayed here is the number of channels still to be auto tuned.

Notes:

- Auto Tuning searches for TV stations from VHF minimum to UHF maximum and memorizes every tuned programme position. Other programme positions are skipped.
- Auto Tuning takes seven or more minutes to complete its search.
- If the VCR is not correctly tuned by Auto Tuning, follow the procedure on the next page.
- To rearrange the channels at the desired channel positions, proceed with Manual Tuning.

Channels that can be Received

	VHF	UHF
NV-HD670A	0–12	21–69
NV-HD670EA	1–11	21–69

Manual Tuning Procedure

1 Press **MENU**.

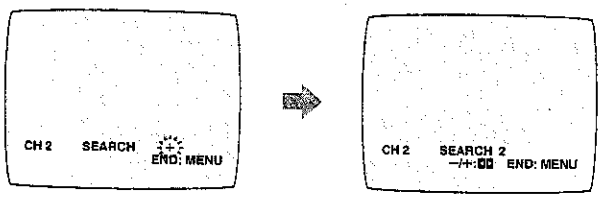
2 Select **TUNER PRESET** by pressing ▲ or ▼ and **ENTER**.

3 Select **CH** by pressing ▲ or ▼ then select the channel number you want tuned by pressing ◄ or ►.

4 Confirm that **CLEAR** is set to **OFF**.

5 Select **SEARCH** by pressing ▲ or ▼ then press ◄ or ►.

On Screen Display



6 If the desired TV station has not been tuned, press ◄ or ► again.

- Press **MENU** and repeat steps **3–5** for each programme position you want to tune to a station.
- To exit, press **MENU** three times.

Direct Tuning

1 Repeat steps **1–4** in **Manual Tuning**.

2 Select **SEARCH** by pressing ▲ or ▼.

3 Using the **numeric buttons** on the remote controller (Ensure that **VCR/TV** switch is set to **VCR**.), enter the same number as the number of the channel to be tuned. For the 5A and 9A channels, input the following numbers: 90 for CH-5A, 91 for CH-9A.

- For other channels that require tuning, repeat steps **3–4** in **Manual Tuning** and steps **2–3** above.
- To exit, press **MENU** twice.

Fine Tuning Procedure

1 Press **MENU**.

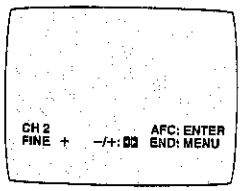
2 Select **TUNER PRESET** by pressing ▲ or ▼ and **ENTER**.

3 Select **CH** by pressing ▲ or ▼ then select the programme position by pressing ◄ or ►.

4 Select **FINE** by pressing ▲ or ▼.

5 Press ◄ or ► to obtain the best tuning condition.

On Screen Display



- To return the tuning to its former state, press **ENTER**.

6 Press **MENU**.

Blanking of Unused Programme Positions

1 Press **MENU**.

2 Select **TUNER PRESET** by pressing ▲ or ▼ and **ENTER**.

3 Select **CH** by pressing ▲ or ▼ then select the programme position by pressing ◄ or ►.

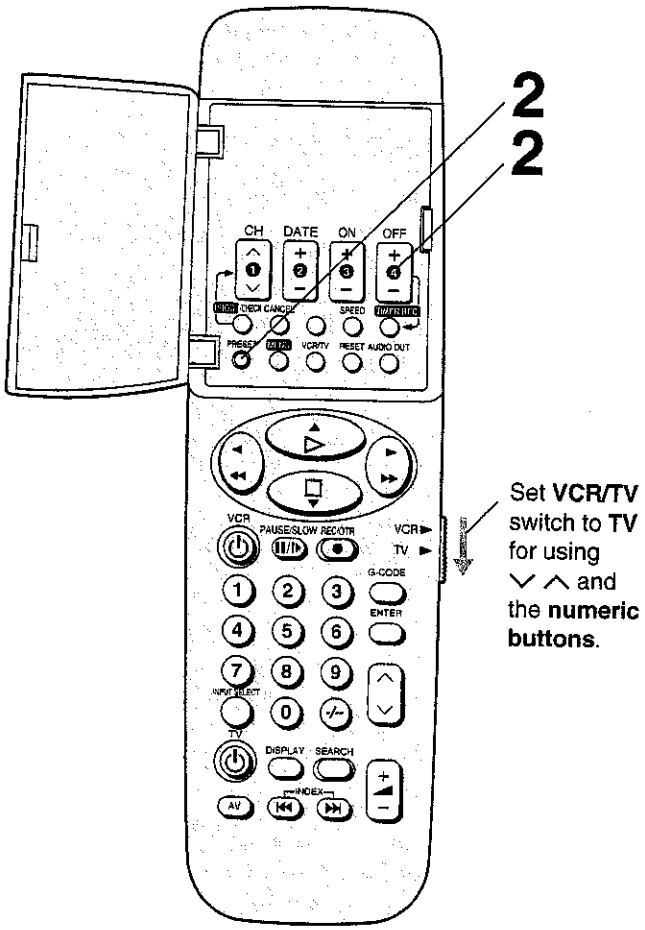
4 Select **CLEAR** by pressing ▲ or ▼.

5 Select **ON** by pressing ◄ or ►.
- Repeat steps **3–5** for other unused programme positions to skip during the selection of programme positions.
- To cancel the blanking of a programme position, select that programme position then select **CLEAR OFF**.

6 Press **MENU** twice.

Setting the Remote Controller for Operation of your TV

You can operate the TVs of the manufacturers listed below with the remote controller after setting it.



Preparation

Install the batteries in the remote controller.

Operations

1 Turn on the TV.

2 Press **OFF** "+" or "−" slowly and accurately while holding down **PRESET**. Each time either "+" or "−" is pressed, the number changes in the following sequence.

- When "+" is pressed: 1→2→...19→1→...
- When "−" is pressed: 19→18→...1→19→...
- The TV power is turned off when you reach the number matching the number corresponding to the manufacturer of your TV. The manufacturer number is not displayed.
- Set **VCR/TV** switch to **TV**, otherwise you cannot select the programme position of the TV using ∨ ∧ and the **numeric buttons** of this remote controller.

Note:
Some TV models cannot be operated using this remote controller.

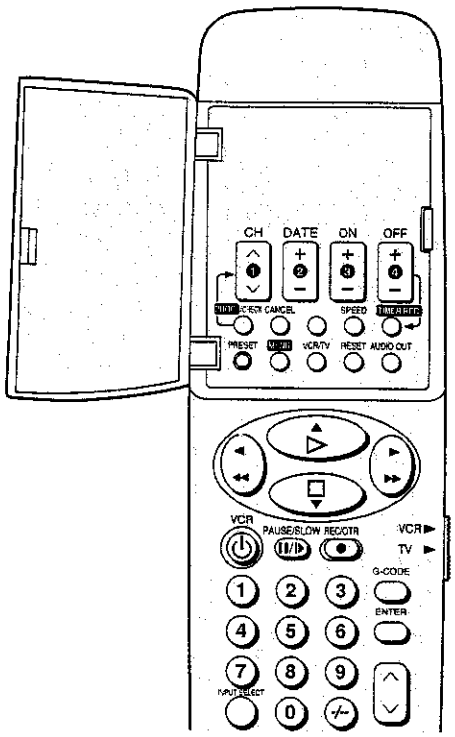
When the TV manufacturer is Panasonic/National, MITSUBISHI, SANYO, GOLDSTAR or SAMSUNG:
If, after the settings, none of the functions except for the one which turns off the power are operational, repeat step **2**, and perform the settings again using a different manufacturer number.

1 Panasonic/National
2 Panasonic/National
3 Panasonic/National
4 Panasonic/National
5 SONY
6 TOSHIBA
7 JVC
8 HITACHI
9 MITSUBISHI
10 MITSUBISHI
11 SHARP
12 PHILIPS, SAMSUNG
13 NEC
14 SANYO
15 GOLDSTAR
16 GOLDSTAR
17 SAMSUNG
18 SAMSUNG
19 SANYO

Language Setting of the On Screen Display

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-HD670EA only)

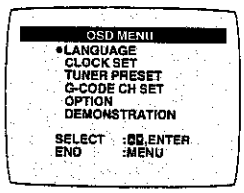


To Select the Desired Language

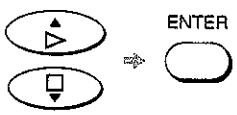
Select one of the two languages displayed: English and Russian.

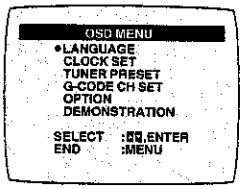
1 Press **MENU**.

On Screen Display

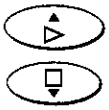


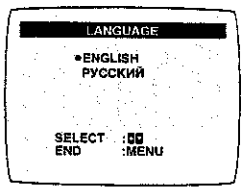
2 Select **LANGUAGE**.





3 Select the desired language.

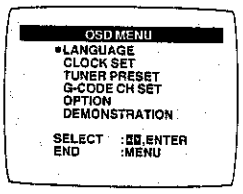




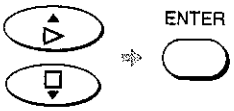
4 Press **MENU** twice.

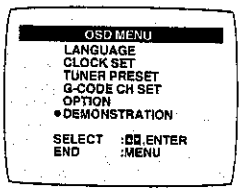
To Demonstrate the OSD Menu

1 Press **MENU**.



2 Select **DEMONSTRATION**.





- During the demonstration mode, all the on screen displays are displayed one after the other at about five second intervals.

3 Press **MENU** to stop the demonstration.

Note:

The menu screen has a blue background. However, if there is no signal input while A1 or A2 is selected, the menu screen may change to black and white when **MENU** is pressed. This does not indicate a malfunction. If it happens, either input a signal or select another programme position.

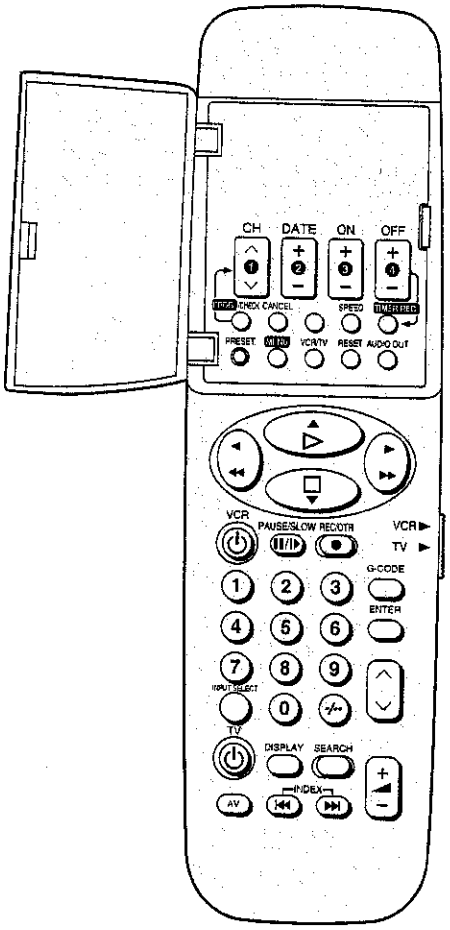
Setting the Clock of your VCR

The built-in digital clock is used to activate the timer for automatic recording and must be set to the correct time. It employs the 24-hour system.

Example:
Date; 16 October, 1999
Time; 20:15

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-HD670EA only)



Time Reset Function

If the clock is less than two minutes slow or fast, it can easily be reset to the proper time.

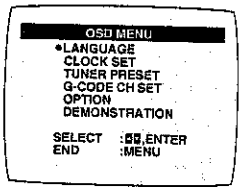
Example:
Resetting the clock to 12:00.00

1 Select **CLOCK SET** from the OSD menu and press **ENTER**.

2 When the current clock display on the VCR is between 11:58.00 and 12:01.59, press **MENU** as soon as you hear the 12:00.00 signal. This resets the time to 12:00.00.

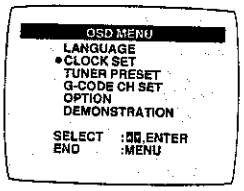
Operations — On Screen Display

1 MENU



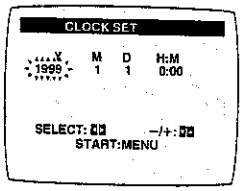
Press **MENU**.

2 ENTER

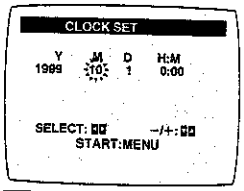


Select **CLOCK SET**.

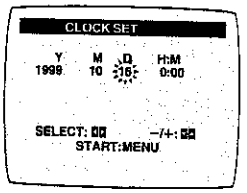
3 Set each item by pressing ▲ or ▼ and ►. Press ◄ to return to the previous item.



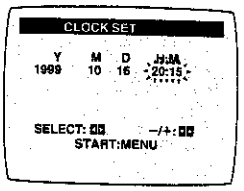
Set **Year** to "1999".



Set **Month** to "10".



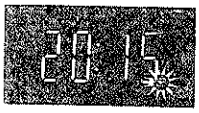
Set **Date** to "16".



Set **Time** to "20:15".
- When it is kept pressed, the indication changes in 30-minute steps.
- There is no need to press ►.

4 MENU

Display Symbol



Press **MENU**.
- The clock starts.

Note:
The clock operates for at least 60 minutes on its backup system in the event of a power failure.

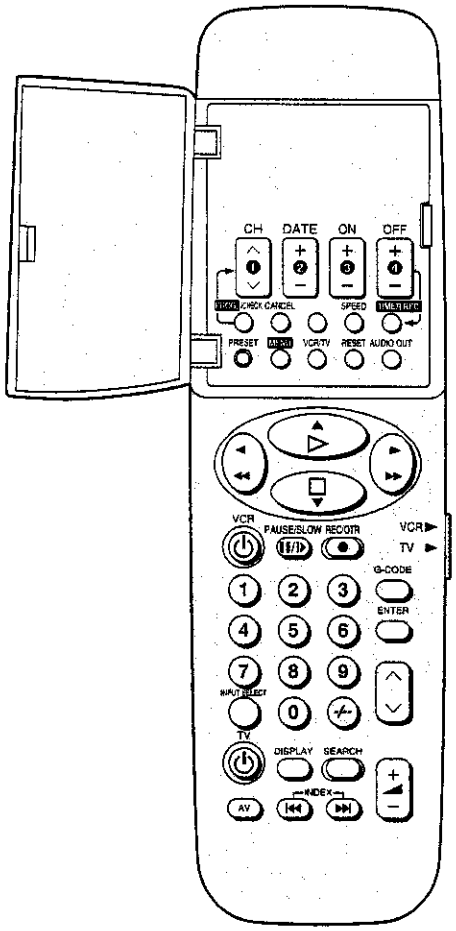
Preparations for G-Code Programming

Identification numbers must be set for G-Code programming. Proceed with the G-Code programming operation described on page 29, and the identification numbers of the TV stations concerned will be set automatically. This will allow G-Code programming to be undertaken without performing the operation described on this page. However, you can follow the setting procedure described below if you wish to set the identification numbers of all the TV stations prior to actual programming.

"Identification numbers" refer to the numbers used for identifying TV stations.
The programme positions on the VCR receiving the TV stations are set in these identification numbers.
Have a newspaper or magazine which lists today's local TV station programmes and G-Code numbers on hand.

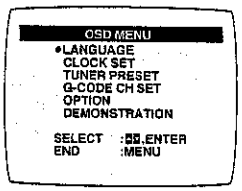
Preparations

- Set the clock of the VCR. See page 16.
- Store TV broadcasts in your VCR. See pages 11–13.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-HD670EA only)

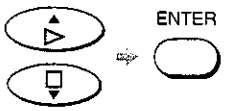


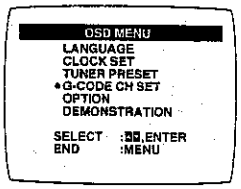
Operations **On Screen Display**

1 Press **MENU**.

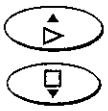


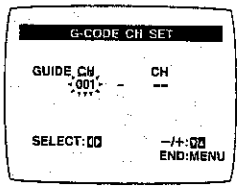
2 Select **G-CODE CH SET**.



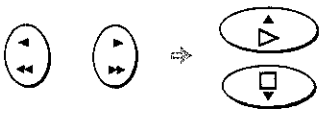


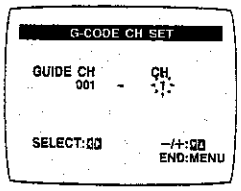
3 Select the identification number **(GUIDE CH)** (001–255).





4 Press ◄ or ► then select the programme position (1–99, A1 or A2).





- To set the other TV stations, press ◄ or ► then repeat steps **3** and **4**.

5 Press **MENU** twice.

Note:
To receive satellite stations, the satellite receiver must be connected to the VCR and programme position must be set depending on the type of connection.
A1/A2: When the satellite receiver is connected to the audio/video input sockets (AV1/AV2).
- When the satellite receiver is connected by means of the RF coaxial cable, set to a free programme position between 1 and 99.

Example:
(NV-HD670A)

TV Station	Position Number	Identification Number (GUIDE CH)
ABC	2	002
ATN	7	007
TCN	9	009
TEN	10	010
SBS	28	028/001

Example:
(NV-HD670EA)

TV Station	Position Number	Identification Number (GUIDE CH)
TV ONE	1	001
CHANNEL 2	2	002
TV3	3	003
SKY TV MOVIES	*	004
SKY TV SPORTS	*	005
SKY TV NEWS	*	006
SKY ORANGE	*	007
SKY DISCOVERY & TRACKSIDE	*	008
CTV	11	011

***Connection to the Sky decoder**

When the Sky decoder is connected to the audio video input sockets:

Set to "A1" or "A2".

When the Sky decoder is connected by means of the RF coaxial cable:

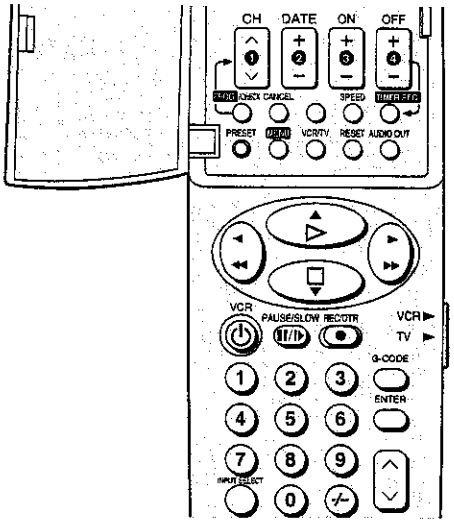
Set to the programme position that the Sky decoder is tuned to.

- When G-Code programming, turn on the Sky decoder and select the desired Sky channel.

Settings Using the On Screen Display

Preparations

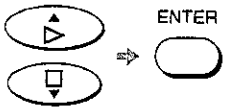
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-HD670EA only)



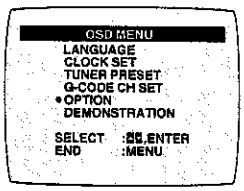
On Screen Display

1 Press **MENU**.

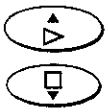
2 Select **OPTION**.

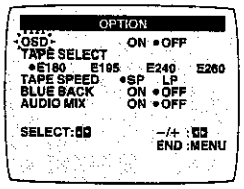


On Screen Display

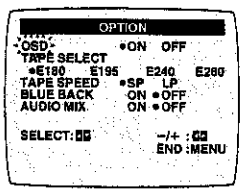


3 Select **OSD**.





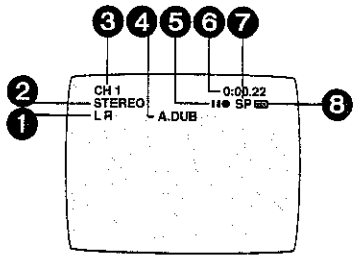
4 Select **ON** or **OFF**.



ON: The on screen display will appear on the TV screen.
OFF: The on screen display will not appear.

5 Press **MENU** twice to make the on screen display disappear.

To use the on screen display:



❶ Audio Output Mode Indicators
The Left (L) and Right (R) Indicators show which sound mode is selected with **AUDIO OUT**.
Stereo: Both the Left (L) and Right (R) Indicators appear.
Left: The Left (L) Indicator appears.
Right: The Right (R) Indicator appears.
Normal: Neither the Left (L) nor Right (R) Indicator appears.

❷ STEREO or BILINGUAL Indicator (NV-HD670A)
When receiving a TV programme, the type of sound system in which it is broadcast is automatically indicated.
STEREO, M1 and M2 Indicator (NV-HD670EA)
When receiving a TV programme with the NICAM sound system, the type of sound system in which it is broadcast is automatically indicated.
STEREO: When receiving a NICAM stereo broadcast.
M1 M2: When receiving a NICAM dual-sound broadcast.
M1: When receiving a NICAM monaural broadcast.

Note:
The hear stereo performance connect as shown on page 8 to a TV or Stereo Amplifier with left and right audio inputs.

❸ Programme position

❹ Edit mode
When edit mode (Insert Editing, AV Insert Editing, Audio Dubbing) is set, the On Screen Display appears.
INSERT: Insert Editing
AV INSERT: AV Insert Editing
A. DUB: Audio Dubbing

❺ Tape running display

Stop, Eject	
Rewind, Review	◀◀
Fast forward, Cue	▶▶
Playback	▶
Still playback	❚❚
Recording, Insert editing, Audio dubbing	●
Recording pause, Insert editing pause, Audio dubbing pause	❚❚●
Slow playback	❚▶
Repeat playback	R ▶

❻ Present time/Tape counter/Remaining tape time/ OTR indication/Dew/Index search

Information	Display
Present time	17:24
Tape counter	−2:35.47
Remaining tape time	REMAIN 2:34
OTR indication	OTR 60
Dew	DEW
Index search	S 01

❼ Tape speed indicator (SP/LP/EP)

❽ Cassette-in indicator

Notes:

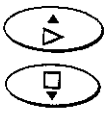
- The on screen display may be disturbed or disappear during special playback.
- The on screen display does not appear when the **OSD** is set to OFF. Set the **OSD** to OFF for dubbing.
- The **OSD** is set to OFF when the VCR is purchased. The setting returns to OFF when the VCR is turned off.

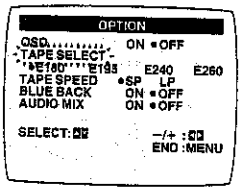
To Select the Corresponding Video Cassette Tape Length to Display the Approximate Remaining Tape Time

Follow steps 1 to 2 on page 19.

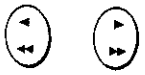
3 Select **TAPE SELECT**.

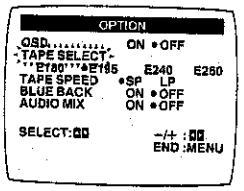
On Screen Display





4 Select the corresponding video cassette tape length.





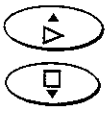
E180: For E30, -60, -90, -120, -150 and -180 tapes.
E195: For E195 tape.
E240: For E240 tape.
E260: For E260 and -300 tapes.

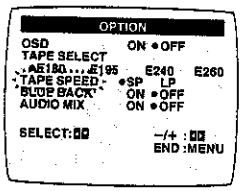
5 Press **MENU** twice to make the on screen display disappear.

To Select the Desired Tape Speed for Manual Recording

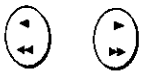
Follow steps 1 to 2 on page 19.

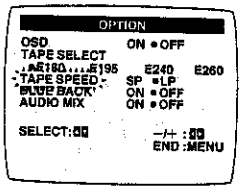
3 Select **TAPE SPEED**.





4 Select the desired tape speed.





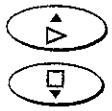
5 Press **MENU** twice to make the on screen display disappear.

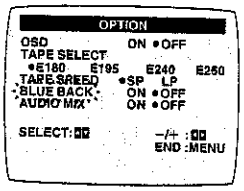
For the Blue Background Function

When **BLUE BACK** is **ON**, the screen will always have a blue background when no signal is received or the received signal is very weak.

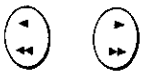
Follow steps **1** to **2** on page 19.

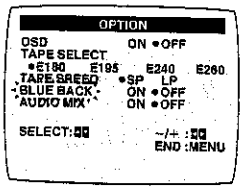
3 Select **BLUE BACK**.





4 Select **ON** or **OFF**.





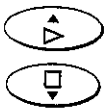
- When **BLUE BACK** is **OFF**, the blue background function is deactivated.
- It is not possible to record the blue picture of the blue background function.

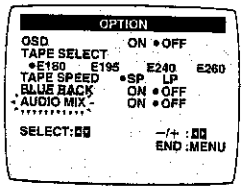
5 Press **MENU** twice to make the on screen display disappear.

Audio Mix

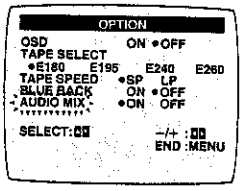
Follow steps **1** to **2** on page 19.

3 Select **AUDIO MIX**.





4 Select **ON** or **OFF**.



ON: Both sound tracks (the Hi-Fi sound track and the normal sound track) are played back mixed together. Use this setting when playing back a cassette tape which has been insert edited or audio dubbed.

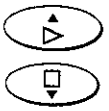
OFF: Normally set at this position to reproduce the better sound available from the Hi-Fi track.

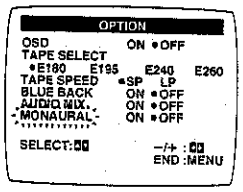
5 Press **MENU** twice to make the on screen display disappear.

To select the Sound Mode (NV-HD670EA only)

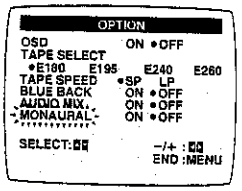
Follow steps **1** to **2** on page 19.

3 Select **MONAURAL**.





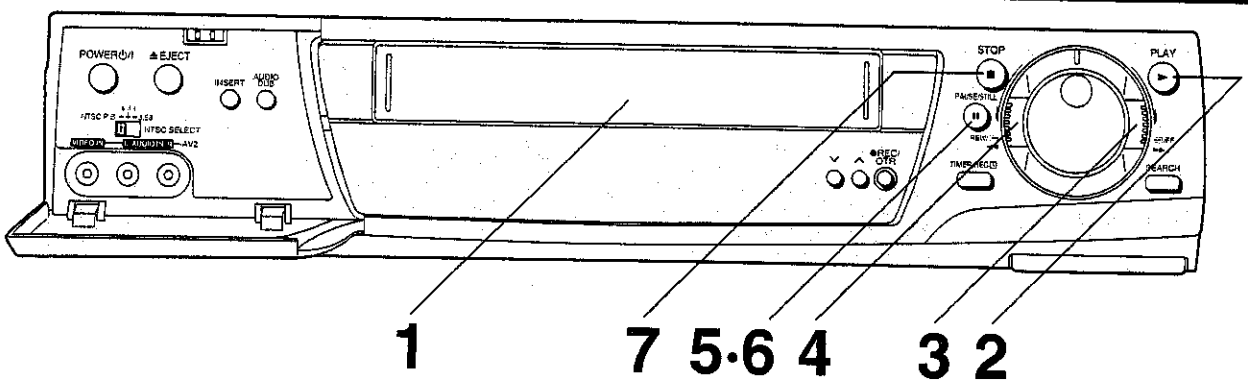
4 Select **ON** or **OFF**.

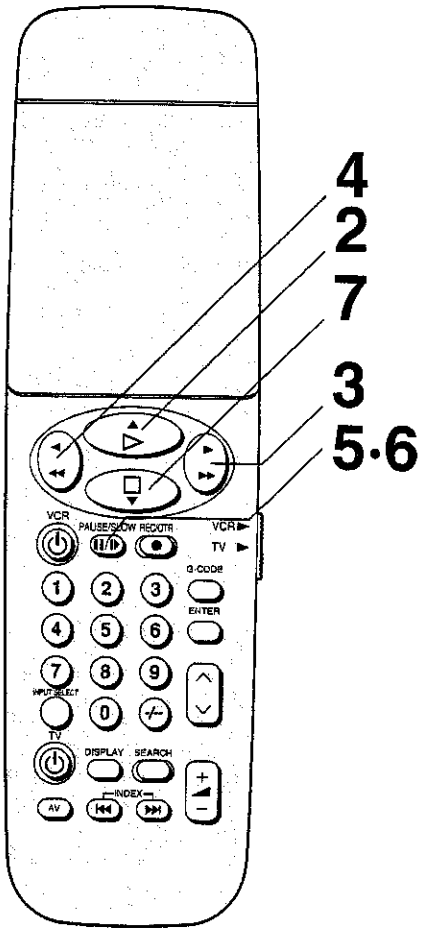


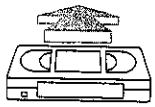
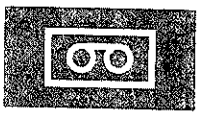
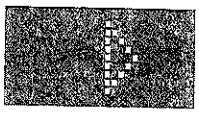
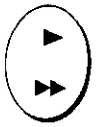
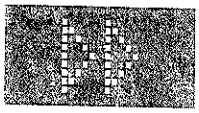
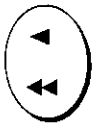
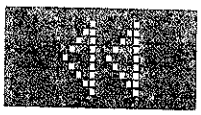
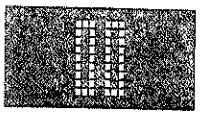
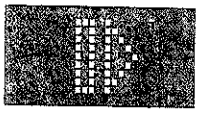
- Select **ON** to record the normal sound during a NICAM broadcast or if the stereo sound is distorted due to inferior reception conditions.

5 Press **MENU** twice to make the on screen display disappear.

Playback





Operations	Display Symbols	
1		 Insert a recorded video cassette tape.
2		 Start viewing the picture.
3		 Search forward by tapping **FF**. ●To change back to normal playback, press **PLAY**.
4		 Search backward by tapping **REW**. ●To change back to normal playback, press **PLAY**.
5	PAUSE/SLOW	 View a still picture. ●Press **PAUSE/SLOW (PAUSE/STILL)**. ●To continue normal playback, press **PLAY** or **PAUSE/SLOW (PAUSE/STILL)**.
6	PAUSE/SLOW	 View a slow motion picture. ●Keep **PAUSE/SLOW (PAUSE/STILL)** pressed for 2 seconds or more. ●To continue normal playback, press **PLAY**.
7		Stop viewing the picture.

Notes:

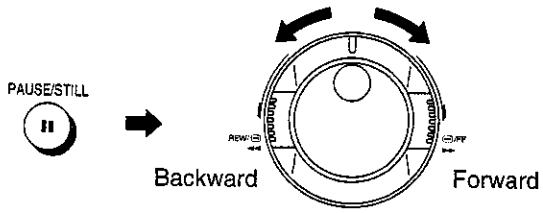
- If you keep **FF** or **REW** pressed in step **3** or **4**, search playback is activated while the button is pressed, and operation returns to normal playback when the button is released.
- The same operation can also be performed by turning the Shuttle Ring briefly clockwise or counterclockwise in step **3** or **4**.

Other Playback Functions

To change the Playback Speed

1 Press **PAUSE/STILL** on the VCR.

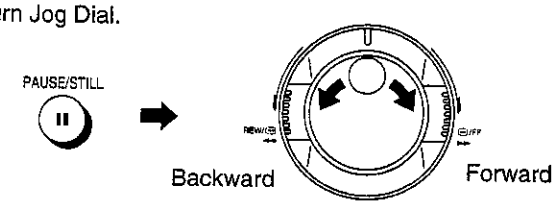
2 Rotate Shuttle Ring.



To locate the Desired Picture Exactly

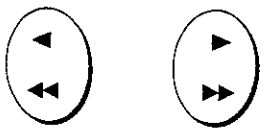
1 Press **PAUSE/STILL** on the VCR.

2 Turn Jog Dial.



To Obtain a High Speed Picture During Fast Forward or Rewind

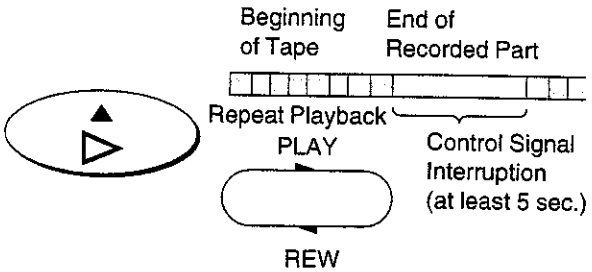
Keep **FF** pressed during fast forward.
Keep **REW** pressed during rewind.



The same operation can also be performed by turning the Shuttle Ring.

To Playback the Recorded Part Repeatedly

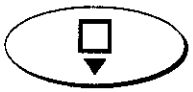
Keep **PLAY** pressed for 5 seconds or more.
The "R ▶" display appears on the TV screen.



- Press **STOP** to release the VCR from the Repeat Playback mode.

To Eject the Video Cassette Using the Remote Controller

Keep pressing **STOP** for at least 3 seconds.



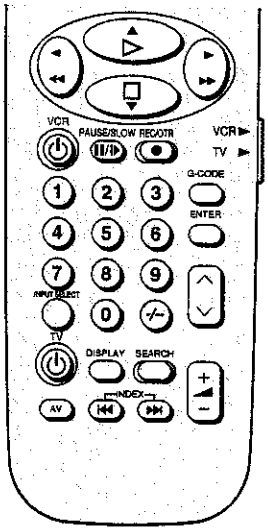
Notes:

- Set **NTSC SELECT** according to the video system of a tape you want to play back.

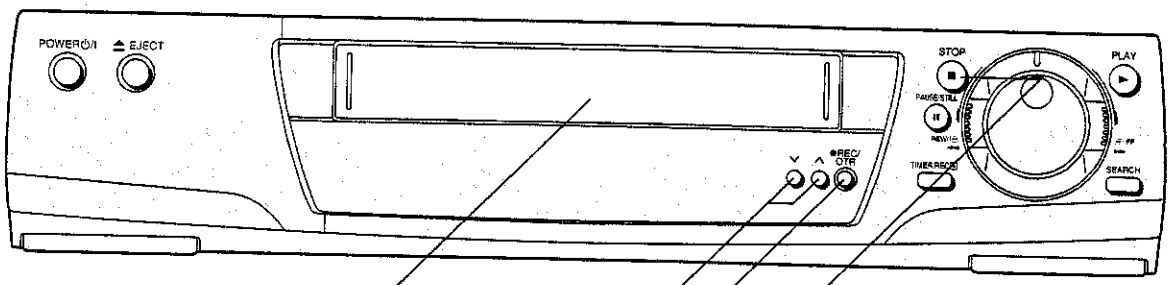
  When playback the NTSC tapes:
  NTSC P.B.: The output signal is the quasi-PAL system.
  4.43: The output signal is the NTSC 4.43 system.
  3.58: The output signal is the NTSC 3.58 system.

  When playback the PAL tapes:
  The output signal is the PAL system regardless of position of **NTSC SELECT**.

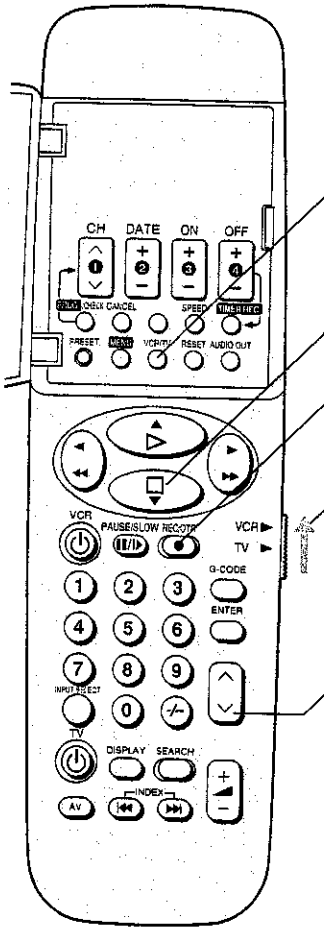
  NTSC 3.58 recording requires **NTSC SELECT** to be in the 3.58 position, however if **NTSC SELECT** is in this position when recording a NTSC 3.58 signal, no colour is available for the PAL TV. Once the recording is completed, you then need to switch **3.58** to **NTSC P.B.** to view the recording in colour on PAL TV.
- Cue, review or slow playback will be automatically released after 10 minutes, and still playback, after 5 minutes.
- In Cue and Review playback, noise bars and distortions may occur on the screen. However, this is not a malfunction.
- Audio reproduction of linear (conventionally recorded) tapes will be monaural when played back on the FM Hi-Fi video recorders.
- In the LP (EP) mode only:
  1. During any playback mode other than normal playback, the picture may have some noise bars, the colour may be unstable, or a black and white picture may appear.
  2. When playing back a tape which was recorded on another VCR, it may be necessary to adjust tracking control. In some cases the picture quality may still be inferior. This is due to format constraints.
  3. Depending on the TV set used, the playback picture may roll up or down during special playback (Pause, Cue, Review or Slow playback mode). However, this is not an indication of a malfunction.



Manual Recording



1 3 4 5

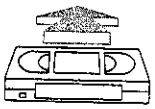
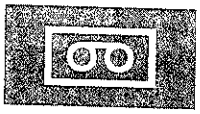
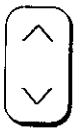
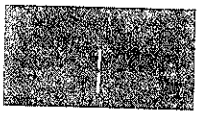
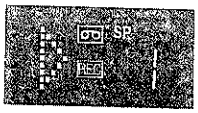


2

5

4 Set the **VCR/TV** switch to **VCR** to use the ∨ ∧ and the **numeric buttons**.

3

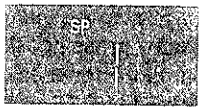
Operations	Display Symbols	
1	 	Insert a video cassette tape with an intact erasure prevention tab. ●If it has already been inserted, press **POWER ⏻/I (VCR ⏻)** to turn the VCR on.
2	VCR/TV	Select the VCR mode. (NV-HD670EA only)
3	 	Select the TV station. ●It is also possible to select by pressing **numeric buttons**. ●Ensure that **VCR/TV** switch is set to **VCR**.
4	REC/OTR 	Start recording.
5		Stop recording.

To Select the Desired Tape Speed

Press **SPEED** before recording.

Display Symbol

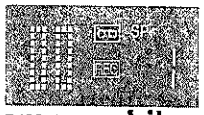
SPEED



To Interrupt Recording

Press **PAUSE/SLOW (PAUSE/STILL)** during recording.
Press again to continue recording.

PAUSE/SLOW



To Record One TV Programme while Viewing Another One

1 Refer to steps **1–4** of the manual recording operation.

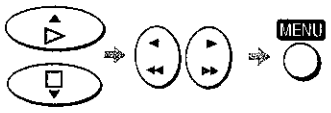
2 Press **VCR/TV** to select the TV mode. (NV-HD670EA only)

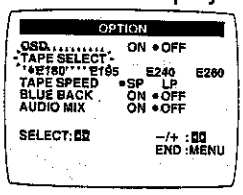
3 Select the TV programme on your TV that you wish to view now.
- Ensure that **VCR/TV** switch is set to **TV**.

To Display the Approximate Remaining Tape Time

1 Select **TAPE SELECT** from the on screen display and select the corresponding video cassette tape length. See page 20.

On Screen Display





E180: For E30, -60, -90, -120, -150 and -180 tapes.
E195: For E195 tape.
E240: For E240 tape.
E260: For E260 and -300 tapes.

2 Press **DISPLAY**.

DISPLAY

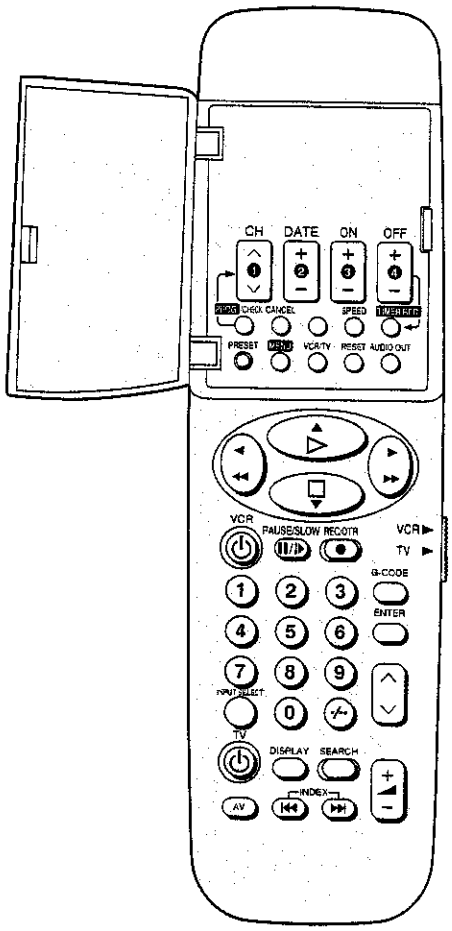
The display changes as follows each time **DISPLAY** is pressed.

→Clock→Counter→**Remaining Tape Time**

- The remaining tape time may not be displayed correctly depending on the tape used.

Notes:

- When a video cassette with a broken off erasure prevention tab is inserted, the "⊙" indication will flash to indicate that recording is not possible even if **REC/OTR** is pressed.
- The recording pause mode will be automatically released after 5 minutes, and the VCR will return to the stop mode.



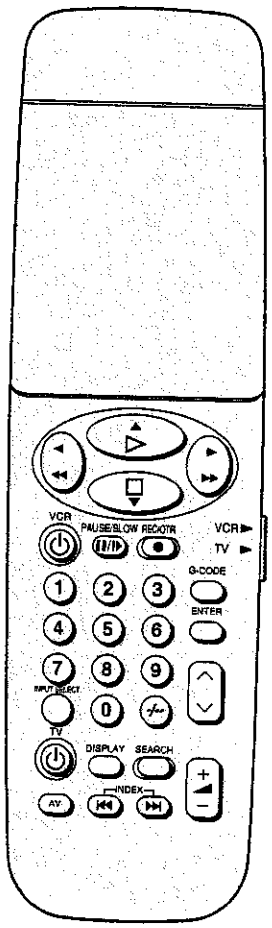
The NICAM Broadcast System (NV-HD670EA only)

NV-HD670EA is equipped with the NICAM sound system. NICAM is a 2 channel sound broadcast system to provide either a high quality stereo sound track or 2 independent MONO sound tracks, M1 and M2.
NICAM programmes are always accompanied by standard sound broadcasts and you can select the desired sound with **AUDIO OUT** during playback.

- The NICAM digital stereo sound can only be recorded on the Hi-Fi audio track.
- When NICAM programme is being received, the indicators are lit to inform you of the type of broadcast. (See page 19.)
- To record the regular sound (ordinary normal sound) on the FM audio tracks when a NICAM programme is received, select **MONAURAL ON**. (See page 21.)
- To hear stereo performance connect as shown on page 8 to a TV or Stereo Amplifier with left and right audio inputs.

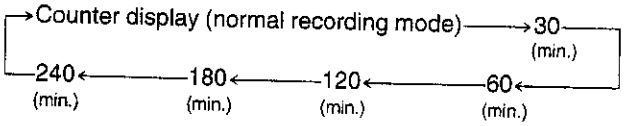
Important Note for the NICAM System

When NV-HD670EA is switched on, the tuner will automatically switch to a NICAM broadcast, if NICAM is being transmitted.
At this time the NICAM signal is transmitted on stereo channels only, since the M1 and M2 formats are not yet available. Even if the sound track is in MONO, the stereo indicator will appear.



One-Touch Recording (OTR)

Whenever you are in a hurry to start a timer recording with automatic stop in your absence, simply set the recording duration by pressing **REC/OTR** repeatedly.
The duration indicated on the VCR display changes by pressing **REC/OTR** as follows:



Preparation

Insert a video cassette with an intact erasure prevention tab.

Operations

1 Ready the video source which is to be recorded, and start recording.

2 Press **REC/OTR** repeatedly to select the desired recording duration.

- The VCR will automatically switch off when OTR is completed. To turn the VCR on again, press **POWER ⏻/I (VCR ⏻)**.

Notes:

- The OTR function works during normal recording.
- When the tape reaches its end during OTR, the VCR will turn itself off.
- To stop OTR at any time, press □ **(STOP)** or **POWER ⏻/I (VCR ⏻)**.

Timer Recording

Using the On Screen Display

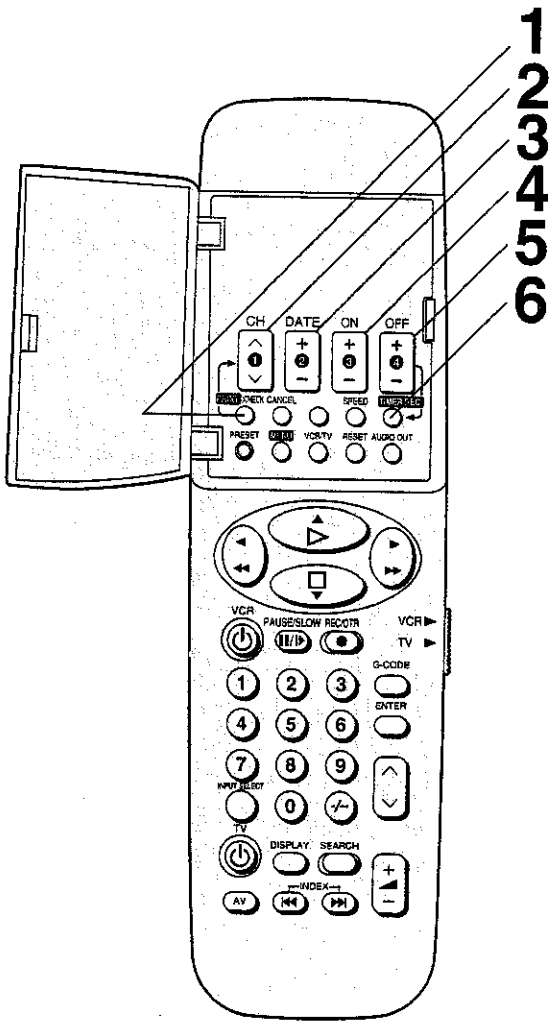
Up to 8 timer programmes, including weekly and daily programmes, can be recorded up to one month in advance by setting the timer.

Preparations

- Insert a video cassette tape with an intact erasure prevention tab.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-HD670EA only)

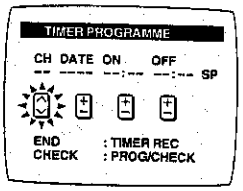
Example:

Programme position (channel); 2
Date; 27 October
Starting time; 20:02
Ending time; 21:30
(Present date; 16 October)

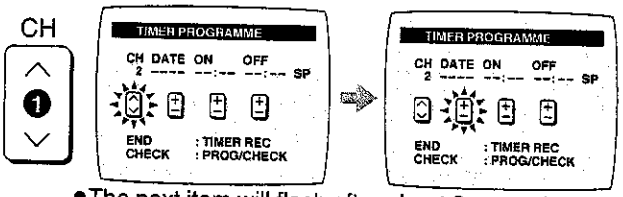


Operations **On Screen Display**

1 Press the **PROG./CHECK** button.

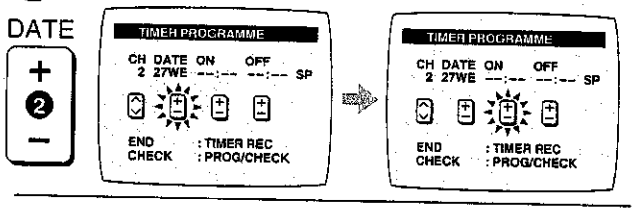


2 Set **Programme position** (channel) to "2".



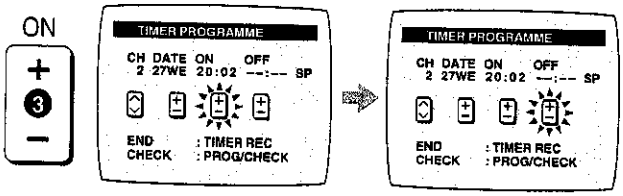
- The next item will flash after about 2 seconds.

3 Set **Date** to "27WE".

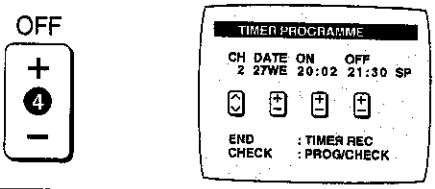


4 Set **Starting time** to "20:02".

- When kept pressed, the indication changes in 30-minute steps.



5 Set **Ending time** to "21:30".



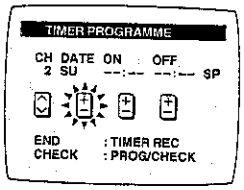
6 To activate timer recording, press **TIMER REC**.

- The "PROGRAMME IS COMPLETE." message appears.
- The VCR will be set to the timer recording standby mode after about 1 minute if **TIMER REC** is not pressed.

Weekly Timer Recording

In step **3**, select the desired day by pressing **DATE −**.
For example, SU (Sunday)

On Screen Display



(SU=Sunday, MO=Monday, TU=Tuesday, WE=Wednesday, TH=Thursday, FR=Friday, SA=Saturday)

Daily Timer Recording

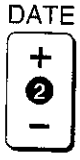
For this timer function, several groups of days can be selected.

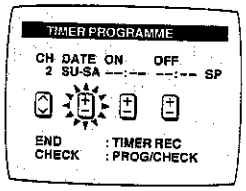
Ⓐ Daily recording from Monday to Friday (MO–FR)

Ⓑ Daily recording from Monday to Saturday (MO–SA)

Ⓒ Daily recording from Sunday to Saturday (SU–SA)

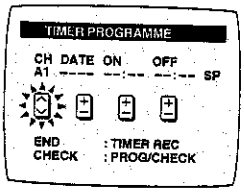
In step **3**, select the desired days by pressing **DATE −**.
For example, Ⓒ





Timer Recording from an External Signal Source

If timer recording is performed by a unit connected to the audio/video input sockets, select the A1 or A2 indicator in step **2** for the programme position.

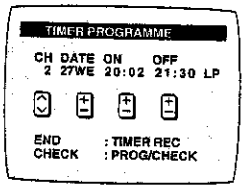


Setting other Programmes in Succession

Repeat steps **1–6**.

Selecting the Desired Tape Speed

Press **SPEED** to make the selection in any of steps **1–5**.

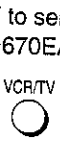


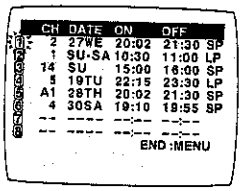
Checking a Timer Programme

- The VCR must be turned on, or the timer recording indicator "◷" lit.
- Confirm that the TV is on and the VCR viewing channel is selected.

1 Press **PROG./CHECK** twice.

2 Press **VCR/TV** to select the VCR mode. (NV-HD670EA only)



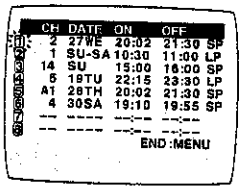


Cancelling a Timer Programme

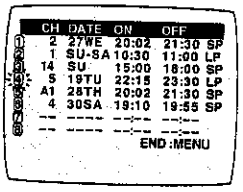
- The VCR must be turned on, or in timer recording standby mode.
- Confirm that the TV is on and the VCR viewing channel is selected.

1 Press **PROG./CHECK** twice.

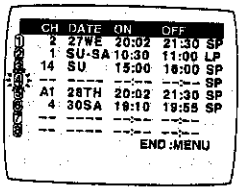
2 Press **VCR/TV** to select the VCR mode. (NV-HD670EA only)



3 Press **PROG./CHECK** repeatedly until the desired timer programme number flashes on and off.



4 Press **CANCEL**.



Note:

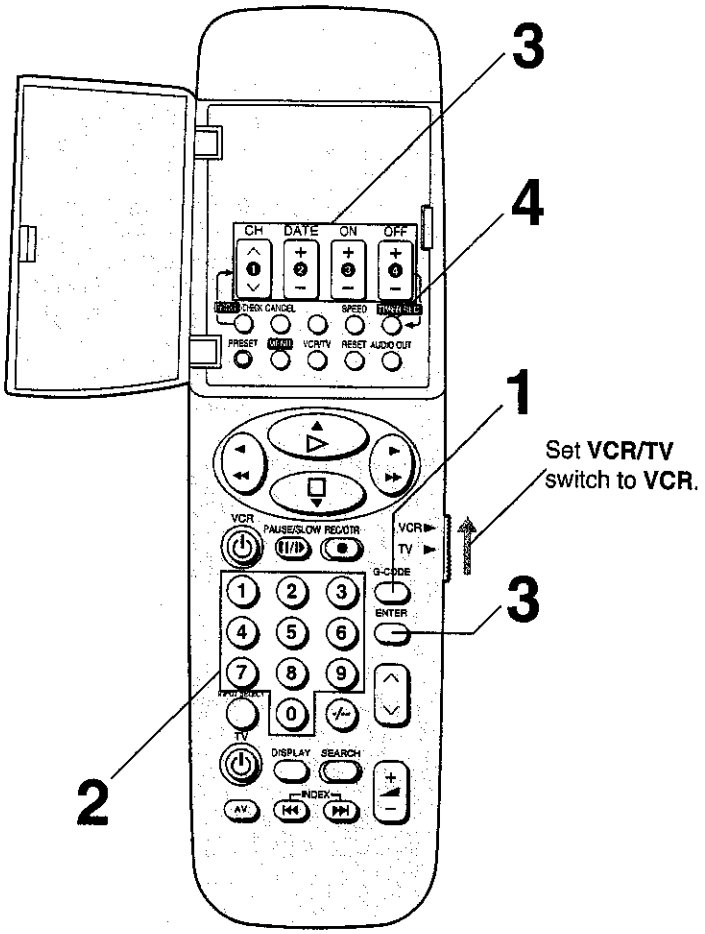
If timer recording is not completed (due to insufficient tape or cancellation by the user), the programmed timer recording data will be cancelled from the memory by 4 A.M. two days later.
However, if, at that time, the timer recording function is activated, the programmed timer recording data will be cancelled at 4 A.M. the next day.

G-Code Programming

Programming is now easier than ever; simply enter the G-Code number found in the programme scheduling pages of newspapers and magazines.
G-Code numbers are numbers assigned to programmes listed in the TV programme schedule found in newspapers and TV guides. When these numbers are entered, the numbers are converted to actual programming.

Preparations

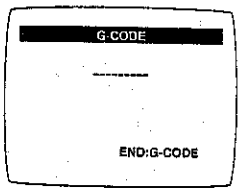
- Insert a video cassette tape with an intact erasure prevention tab.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-HD670EA only)



Operations	On Screen Display

1 Press **G-CODE**.

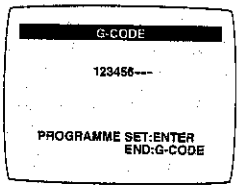
G-CODE



2 Enter a G-Code number.

Example: 123456

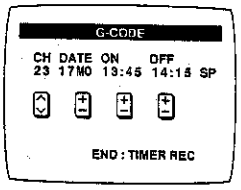
- Ensure that **VCR/TV** switch is set to **VCR**.



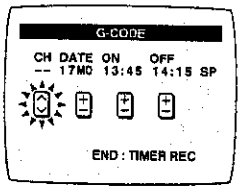
- If you have entered the wrong number, press **CANCEL** then enter the proper number. An alternative method is to press ◀ and then enter the proper number.

3 Press **ENTER**.

ENTER



- Confirm that the number corresponds to the right programme. If the display looks like this:



select the programme position of your VCR which receives the TV station you entered at step **2** using the ❶ **(CH)** button, then press **ENTER**.

- To make any corrections, use buttons ❷ **(DATE)**, ❸ **(ON)** and ❹ **(OFF)** the same way as described on page 27.

4 Press **TIMER REC**.

TIMER REC

Notes:

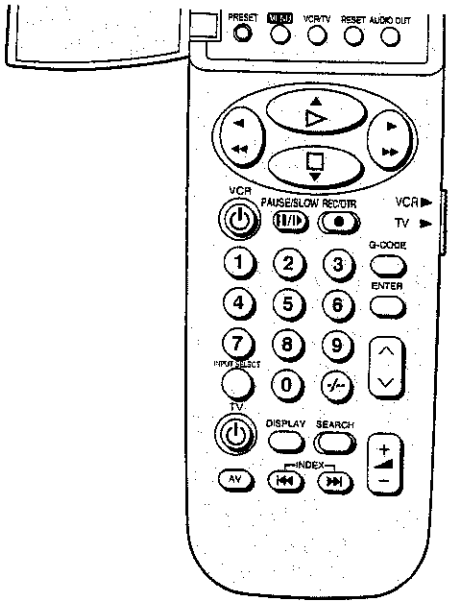
- To select the desired tape speed, press **SPEED** after step **3**.
- When the G-Code number is used for programming, the recording time may be slightly longer than the actual programme time.
- Repeat steps **2** and **3** if "PROGRAMME IS INCOMPLETE." appears.
- When programming two or more programmes, repeat steps **1–4**.
- The procedures for checking and cancelling a timer programme are the same as on page 28.

Search Functions

Searching Timer-Recorded Programmes (Programme List Search)

Searching Using the Programme List Search Function
When timer programmes are recorded by this VCR, the VCR stores the programming details, and the programmes are selected and searched by the programme list search function.

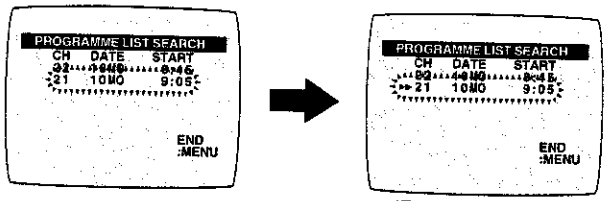
Preparations
- Confirm that the TV is on and the VCR viewing channel is selected.
- Press the **VCR/TV** button to select the VCR operation mode. (NV-HD670EA only)
- Release the standby status for timer programme recording.



Displaying the PROGRAMME LIST SEARCH Screen

Press **SEARCH**.

On Screen Display



(During a search)

- The details of the timer-recorded programmes on this video cassette are displayed on the PROGRAMME LIST SEARCH screen in the sequence in which the programmes were recorded.
- When no further operations are undertaken for about 3 or more seconds, the search for the last timer-recorded programme is commenced.
- Upon completion of the search, playback starts from the searched point on the tape.

Searching other programmes

Press **SEARCH** several times to select the programme which is to be searched.

- When **SEARCH** is pressed once, the timer-recorded programme which was recorded last is selected. Each time **SEARCH** is subsequently pressed, the programme before (or above on the list shown on the screen) is selected.
- If **SEARCH** is pressed again when the top programme is selected, the bottom programme will be selected.
- Another programme can be selected by pressing **SEARCH** even after a search has been commenced.

To stop the search at any time

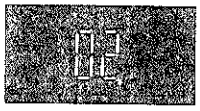
Press **MENU** and clear the PROGRAMME LIST SEARCH screen.

Notes:
- This function does not work during timer recording standby mode.
- This function works only for video cassettes containing timer-recorded programmes.
- Since this function works only for the currently loaded video cassette, **all the programming list details will be cleared when the video cassette is ejected or replaced with another one.** At times like this, use the VHS index search system or the intro-jet scan function. (See page 31.)
- The programme list search function may not work properly when recorded programmes run for 15 minutes or less.
- Ensure that **TAPE SELECT** for **OPTION** on the **OSD MENU** is set correctly, as otherwise, this function will not operate correctly.
- When **SEARCH** is pressed during playback, playback is stopped immediately, and the PROGRAMME LIST SEARCH screen appears.
- Up to 8 programmes can be displayed on the PROGRAMME LIST SEARCH screen. If the timer is used to record more than 9 programmes, the oldest programme will be deleted on the PROGRAMME LIST SEARCH screen, and a new timer-recorded programme will be entered and displayed.
- This function may not work properly depending on the tape position when you press **SEARCH**.
- This function may not work properly when for example, you try to record over a programme with another programme that is timer-recorded on the same portion of the tape.

To Find the Beginning of Each Recording (VHS Index Search System)

Example:
Searching for the 2nd recorded segment in the forward direction.
Press **INDEX** ▶▶I twice.
(This operation is performed while the VCR is in the stop mode or normal playback mode.)

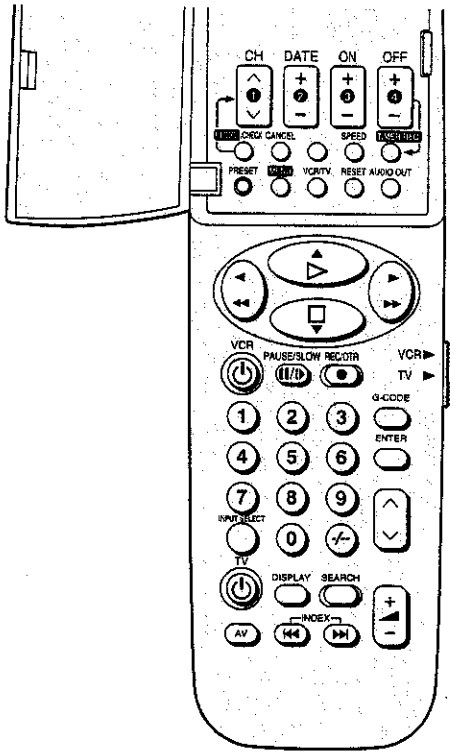
Display Symbol



- After finding the specific recorded segment, playback starts automatically.
- For the reverse direction, press **INDEX** I◀◀.
- Up to 20 index signals can be searched for in both directions.
- When the opposite **INDEX** button is pressed, the number will decrease to 1.
- The figure on the display decreases by 1 each time an index signal is located.

Recording Index Signals
Index signals are recorded in the following cases.
- When a recording is started by pressing **REC/OTR**.
- When timer recording is activated.

Note:
The index search function can only work correctly if the index signals are spaced at least 5 minutes.



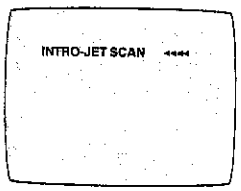
Searching while checking the video cassette contents (Intro-Jet Scan)

The approximate beginnings of each recorded programme are played in succession at the high speed so that the programme to be viewed can be located easily.

Preparations
- Confirm that the TV is on and the VCR viewing channel is selected.
- Press the **VCR/TV** button to select the VCR operation mode. (NV-HD670EA only)
- Load the pre-recorded video cassette.

1 Press **SEARCH**.
(This operation is performed while the VCR is OFF or while the VCR is in the stop mode or normal playback mode with the VCR ON.)

On Screen Display



- The tape is rewound to the start, and played for about 10 seconds at the high speed. It is then fast forwarded, the VISS (VHS Index Search System) signals are searched in succession, and each time the signals are found, the tape is played for about 10 seconds at the high speed.

2 When the programme to be viewed is reached, press **PLAY**.

- Normal playback now commences.

To stop the operation at any time
Press **STOP**.

Notes:
- This function may not work properly when recorded programmes run for 15 minutes or less.
- When the timer recording is completed and the video cassette is neither ejected nor replaced with another one and then **SEARCH** is pressed, the intro-jet scan function will not work, and the programme list search function will work instead.

Editing

Assembly Editing

This function can be used to make up an edited tape from other recordings or video sources.

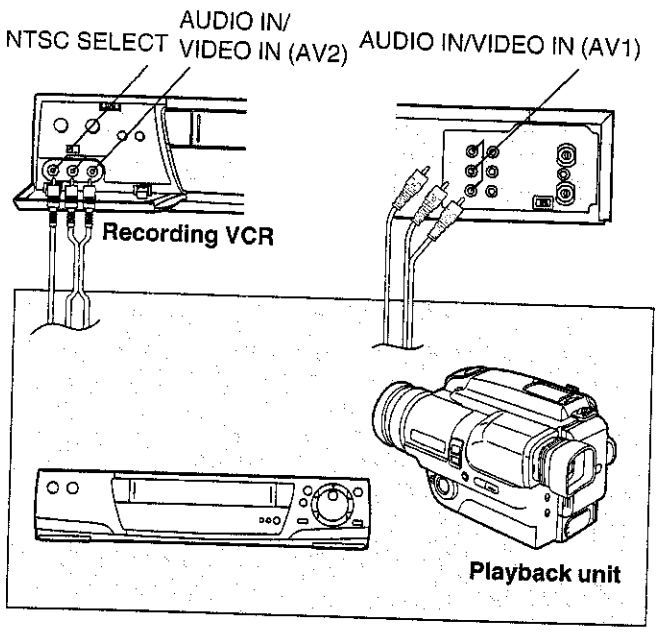
A new scene can be added to the end of previous one.

Preparations

- Connect a movie camera or another VCR to this VCR as shown.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1 or A2.
  - A1: Through the AV1 (AUDIO IN/VIDEO IN) sockets.
  - A2: Through the AV2 (AUDIO IN/VIDEO IN) sockets on front panel.
- Set **NTSC SELECT**.
  - 4.43: When recording NTSC 4.43 signals from an external signal source.
  - 3.58: When recording NTSC 3.58 signals from an external signal source.

When dubbing a NTSC tape, keep the **NTSC SELECT** on both the recording and playback VCRs at the 4.43 or 3.58 position.

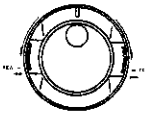
When recording PAL signals from External Signal Source, the tape is recorded in the PAL system regardless of position of **NTSC SELECT**.



Operations

1 Press **PAUSE/STILL** on the recording VCR.

2 Search for the end of the previous recording.



3 Press **REC/OTR** to switch the VCR from the pause mode to the recording standby mode.

4 Start the new recording by pressing **PAUSE/STILL (PAUSE/SLOW)** again.

5 Press **STOP** to stop recording.

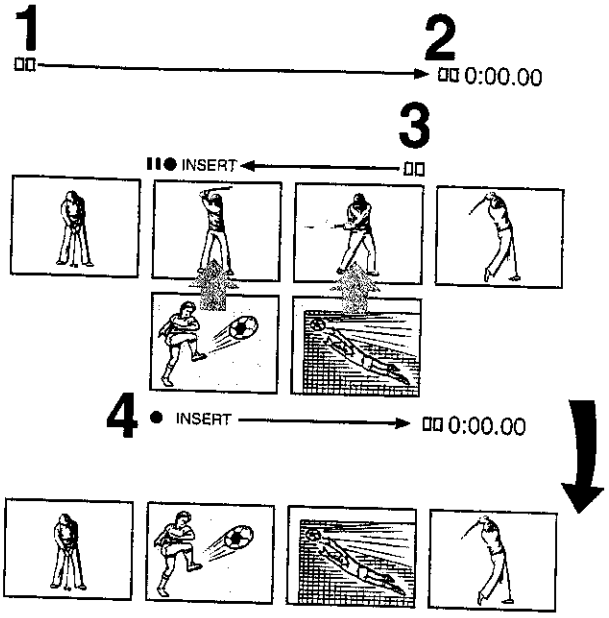
Note:
The new sound will be recorded on both the normal and Hi-Fi sound tracks, only monaural sound recording is possible on the normal sound tracks.

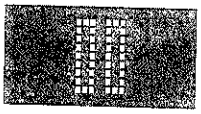
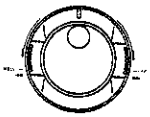
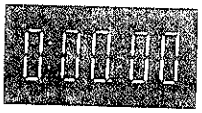
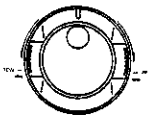
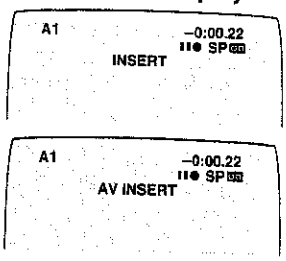
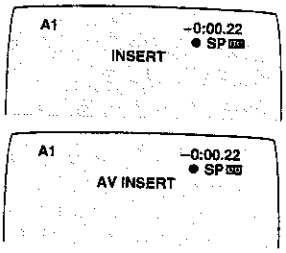
Insert Editing

This is used to substitute one scene for another providing.

Preparations

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1 or A2.
  A1: Through the AV1 (AUDIO IN/VIDEO IN) sockets.
  A2: Through the AV2 (AUDIO IN/VIDEO IN) sockets on front panel.



Operations	Display Symbols	
1		Press **PAUSE/STILL** on the recording VCR.
2 		Search for the Edit out (ending) point, and set the counter to 0:00.00 by pressing **RESET** on the remote controller.
3 	On Screen Display 	Search for the Edit in (starting) point, and press **INSERT**. • If you want to replace the sound on the "normal" audio track, press **AUDIO DUB**, too. (AV Insert Editing)
4		Start insert editing by pressing **PAUSE/STILL (PAUSE/SLOW)**. • The insert editing will finish when the counter reaches 0:00.00.

Note:
Insert Editing cannot be used on blank sections of a tape. In this case use Assembly Editing first.

The new sound will be recorded on the Hi-Fi sound track. If AUDIO DUB selected, the new sound will also be recorded on the normal sound track.

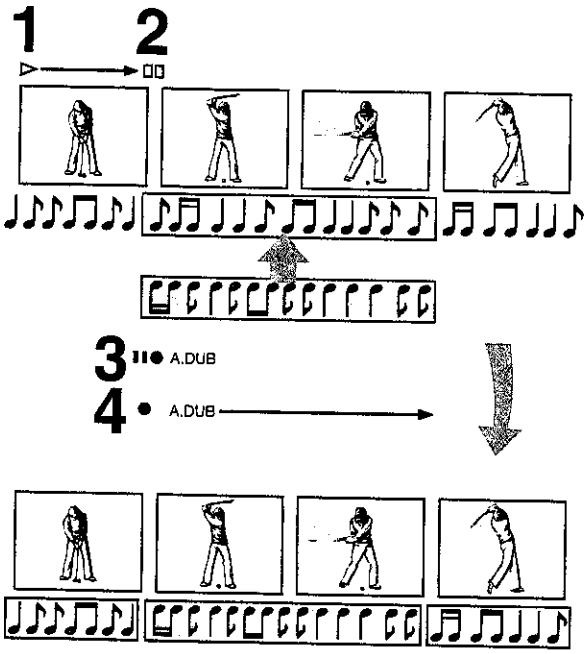
Only monaural sound recording is possible on the normal sound tracks.

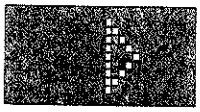
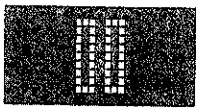
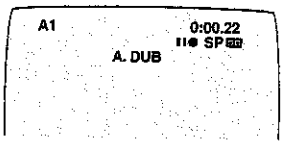
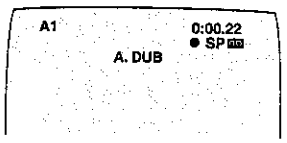
Audio Dubbing

The audio dubbing is made on the normal audio track and erases the original sound on this track. On Hi-Fi audio tracks, however, the original sound is maintained.

Preparations

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1 or A2.
  A1: Through the AV1 (AUDIO IN) sockets.
  A2: Through the AV2 (AUDIO IN) sockets on front panel.

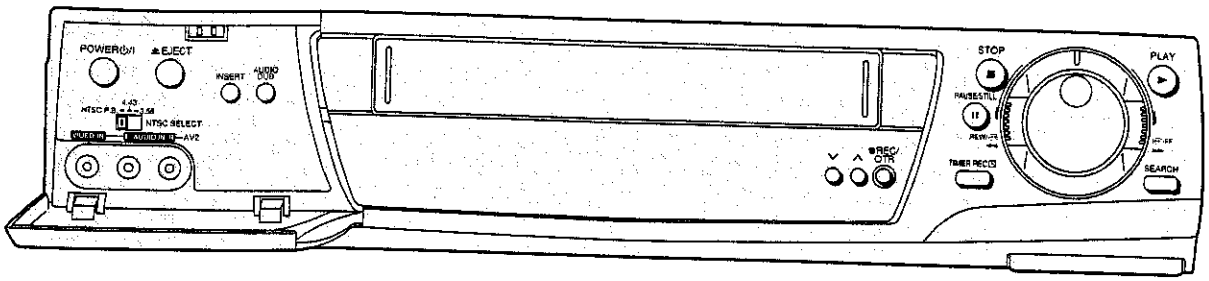


Operations	Display Symbols	
1 PLAY		Search for the starting point for audio dubbing.
2 PAUSE/STILL		Press **PAUSE/STILL (PAUSE/SLOW)** at the starting point.
3 AUDIO DUB	On Screen Display 	Set for audio dubbing by pressing **AUDIO DUB**. • On some TVs, the screen image may become unstable or begin to scroll at this point. However, this is not an indication of a malfunction.
4 PAUSE/STILL		Start recording the new sound by pressing **PAUSE/STILL (PAUSE/SLOW)**. • Stop recording by pressing **STOP**.

Note:
The new sound will be recorded on the normal sound track of the tape, and the original sound will remain on the Hi-Fi sound track. Only monaural sound recording is possible on the normal sound track.

To hear the new sound, select the normal sound track by pressing **AUDIO OUT**.
To hear the new sound and original sound mixed together, set **AUDIO MIX** to ON. (See page 21.)

Other Functions



NTSC Playback

Tapes recorded in the NTSC system can be played back with this VCR via a PAL system TV.

- Set **NTSC SELECT** according to the colour TV system of the TV.

NTSC P.B.:	For TVs that can receive PAL signals.
4.43:	For TVs that can receive NTSC 4.43 signals.
3.58:	For TVs that can receive NTSC 3.58 signals.

Note:

On some TVs, the playback picture may roll up or down; adjust this using the V-HOLD control on the TV. TVs not equipped with a V-HOLD control cannot correct this condition. The playback picture may shrink vertically, and black bars may appear both on the top and bottom of the screen. This does not indicate a malfunction.

- During cue, review, still or slow playback, the picture may not be in colour. Alternatively, the top of the TV screen may be distorted.

Note for only NTSC Playback on PAL system TV

This function is designed to allow only the playback of tapes recorded by NTSC signals on a PAL system TV. The NTSC signal is not completely converted to a PAL signal. For this reason, images played back by this function cannot be recorded correctly on other VCRs.

- NTSC 3.58 recording requires **NTSC SELECT** to be in the 3.58 position, however if **NTSC SELECT** is in this position when recording a NTSC 3.58 signal, no colour is available for the PAL TV. Once the recording is completed, you then need to switch **3.58** to **NTSC P.B.** to view the recording in colour on PAL TV.

Other Automatic Functions

Automatic Playback

When a video cassette without an erasure prevention tab is inserted, the VCR starts playback automatically.

VCR-off Playback

When the VCR is off, an inserted video cassette can be played back by pressing **PLAY**.

Automatic Rewinding

When the tape reaches its end during recording (except for timer recording) or playback, it will automatically be rewound to the beginning.
During OTR, this function will not work.

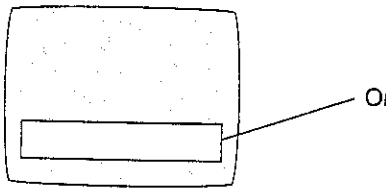
Automatic Switching Off and Ejection

When the VCR is switched off, an inserted video cassette can be ejected by simply pressing **EJECT**. The VCR will eject the video cassette and automatically turn itself off again.

Before Requesting Service

Before requesting service, check the following points again.

On Screen Display Messages



MESSAGE	CAUSE	REMEDY
PLEASE PUT IN A VIDEO CASSETTE.	**REC/OTR** or **TIMER REC** has been pressed without a video cassette inserted.	Insert a video cassette with an intact erasure prevention tab.
PLEASE STOP THE TAPE.	**TUNER PRESET** has been selected during playback.	Stop the tape.
PLEASE SET THE CLOCK.	**TIMER REC**, **G-CODE** or **PROG./CHECK** has been pressed when the clock is not set.	Set the clock.
PLEASE USE A CASSETTE WITH TAB.	**REC/OTR** or **TIMER REC** has been pressed without a video cassette with an intact erasure prevention tab.	Use a video cassette with an intact erasure prevention tab.
NO TIMER RECORDING HAS BEEN SET.	**TIMER REC** has been pressed with no timer programmes.	Set timer recording
TIMER PROGRAMMES ARE FULL.	**G-CODE** has been pressed when 8 programmes have been already set.	Cancel unnecessary programmes.
VCR IS IN THE TIMER STANDBY MODE.	**POWER ⏻/I (VCR ⏻)** has been pressed during the timer standby mode.	Press **TIMER REC** to release the VCR from the timer standby mode.
DEW FORMED IN THE VCR.	Dew has formed.	Wait until the message disappears.

Self-diagnostic Indications

This VCR has a self-diagnosis and display function. If the VCR detects trouble during installation or during use, the following indications automatically appear in the VCR display. Indications are in the form of a single English letter plus two numbers, such as [H01].

INDICATION	CAUSE	REMEDY
U 1 0	Dew has formed.	Wait until the indication disappears.
H □ □	Some trouble has occurred. (Numbers after H and F differ according to the status of the VCR.)	Consult Panasonic Customer Care Centre for advice on 132600. (NV-HD670A only) Consult your dealer for further advice.
F □ □		

The VCR will not operate correctly

SYMPTOM	CAUSE	REMEDY	CHECKED
The VCR display is not illuminated.	The mains lead has not been connected.	Connect the mains lead to the VCR.	
The VCR display is illuminated but the VCR will not operate.	The VCR is in the timer mode.	Press **TIMER REC** to operate the VCR manually.	
	Safety devices are operating.	Disconnect the mains lead and wait for 1 minute. Reconnect the mains supply and check functions.	
	Dew may have formed.	When the dew indicator flashes, wait until this indicator disappears.	
An unknown language appears on the TV screen.	The language setting has been set to an unknown language.	Select the desired language. See page 15.	

Playback will not operate correctly

SYMPTOM	CAUSE	REMEDY	CHECKED
The picture is noisy or is not in colour. Horizontal bars or lines run down the screen.	Tracking is not correct.	Adjust the tracking. See page 5.	
	The TV has not been tuned to the VCR.	Operate **RF OFF/TEST SIGNAL** on the VCR and check the TV tuning. See page 9. (NV-HD670A) Operate the **Video Playback Channel Selector** on the VCR and check the TV tuning. See page 10. (NV-HD670EA)	
	The video heads are clogged or worn.	Consult Panasonic Customer Care Centre for advice on 132600. (NV-HD670A only) Consult your dealer for further advice. See page 39.	

Recording will not operate correctly

SYMPTOM	CAUSE	REMEDY	CHECKED
The "⊙⊙" indication flashes whenever recording is attempted.	The erasure prevention tab on the video cassette has been broken off.	Use a tape with an intact erasure prevention tab, or cover the tab hole with adhesive tape, if the original recording is no longer required.	
The picture is recorded with noise or a blank screen.	The aerial or aerial lead is defective.	Check the aerial connection to the VCR. See page 8. Check your normal TV picture. If there is no picture, check your aerial.	
	The VCR is not correctly tuned.	Retune the VCR. See pages 11–13.	
	A1 or A2 has been selected.	Select the required TV programme.	
Timer recording cannot be performed.	The clock or calendar has been incorrectly set.	Check the clock and calendar. Set them to the present time. (Note that this is a 24-hour clock.) See page 16.	
	The recording starting or ending time setting is incorrect.	Set the recording starting and ending time correctly.	
	The VCR has not been set for timer recording.	Press **TIMER REC** after programming for timer recording.	
AV external recordings cannot be made.	A1 or A2 has not been selected.	Select A1 or A2 by pressing **INPUT SELECT**.	
	External AV connections are incorrect.	Check that the connections for external video and audio sources are correct. See page 32.	

The remote controller will not operate correctly

SYMPTOM	CAUSE	REMEDY	CHECKED
The remote controller does not operate correctly.	The remote controller transmitter beam is not reaching the VCR.	Ensure that the remote controller is being pointed at the VCR and that the transmitter beam is not obstructed.	
	The distance is too far.	Use the remote controller within 7 m of the VCR. If this range is not possible, replace the batteries.	
	The batteries are exhausted.	Replace the batteries. Note the precautions for replacement on page 7.	
	The batteries are incorrectly fitted with (+/–) reversed.	Fit the batteries correctly as shown on page 7.	

Precautions

Please read these precautions before you operate this VCR.

Avoid Sudden Changes in Temperature

If the VCR is suddenly moved from a cold to a warm place, dew may form on the tape and inside the VCR. In this case, the "d" dew indicator will flash on and off and the VCR will not operate.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increases in temperature. Do not block or cover these holes. Avoid covering the holes with soft materials such as cloth or paper.

Keep Away from High Temperature

Keep the VCR away from extreme heat sources such as direct sunlight, heating radiators, or closed automobiles.

Keep Magnets Away

Never bring a magnet or magnetized object near the VCR as it will adversely affect its performance.

Do Not Place Fingers or Other Objects Inside

Do not attempt to disassemble the VCR. Touching internal parts of this VCR is dangerous, and may cause it serious damage. There are no user serviceable parts inside.

Keep Water Away

Keep the VCR away from flower vases, tubs, sinks, etc. If liquids are spilled into the VCR, serious damage could occur. If you spill any liquid into the VCR, consult qualified service personnel.

Lightning

To avoid damage by lightning, disconnect the aerial plug from the VCR.

Cleaning the VCR

Wipe the VCR with a clean, dry cloth. Never use cleaning fluid or other chemicals. Do not use compressed air to remove any dust.

Stacking

Place the VCR in a horizontal position, and do not place anything heavy on it.

If Dew Forms in the VCR

Dew may form in the VCR if:

- The VCR is in a room where the heater has just been turned on.
- The VCR is in a room with steam or high humidity.
- The VCR is brought from cold surroundings into a well-heated room.
- The VCR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

When dew forms in the VCR, the "d" dew indicator on the display flashes on and off (The self test indicator "U10" will also appear in the VCR display.) and all the function buttons are made non-operational to protect the tape and the video heads. When the dew indicator flashes, wait until this indicator disappears.

- If dew forms inside the VCR while the VCR is off, it will turn on automatically and the dew indicator will flash on and off. As soon as the dew disappears, the VCR will turn itself off again.

Dirt on the video heads

If the video heads get dirty, pictures will not be recorded or played back clearly.
(See the following conditions.)

Normal picture → **Small amount of dirt** → **Large amount of dirt**

If this happens, clean the video heads with a commercially available cleaning cassette.
If the problem still persists after performing above, contact a service personnel to request assistance.

Head cleaning by service agents is not covered by warranty.

Specifications

NV-HD670A/EA

Power Source:	240 V AC 50/60 Hz (NV-HD670A) 230 V AC 50/60 Hz (NV-HD670EA)
Power Consumption:	21 watts (NV-HD670A) 22 watts (NV-HD670EA)

Video Recording System:	2 rotary heads, helical scanning system		
Video Heads:	4 heads		
Audio Heads:	2 heads (Hi-Fi)		
Tape Speed:	PAL SP; 23.39 mm/sec.	LP; 11.7 mm/sec.	
	NTSC SP; 33.3 mm/sec.	EP; 11.1 mm/sec.	
Tape Format:	VHS tape		
Record/Playback Time:	PAL SP; 240 min. with NV-E240		
	PAL LP; 480 min. with NV-E240		
FF/REW Time:	approx. 87 sec. with NV-E180		
VIDEO			
Television System:	CCIR; 625 lines, 50 fields, PAL colour signal		
	EIA; 525 lines, 60 fields, NTSC colour signal		
Modulation System:	Luminance; FM azimuth recording		
	Colour signal; converted subcarrier phase shift recording		
Input Level:	VIDEO IN (PHONO);	1.0 Vp-p,	75 ohm, terminated
Output Level:	VIDEO OUT (PHONO);	1.0 Vp-p,	75 ohm, terminated
	RF modulated;		
	UHF channel AU37±6 (NV-HD670A),		75 ohm
	VHF channel NZ 2 or 3 (NV-HD670EA),		75 ohm
AUDIO			
Input Level:	AUDIO IN (PHONO);	−6 dBV,	more than 50 kohm
Output Level:	AUDIO OUT (PHONO);	−6 dBV,	less than 1 kohm
Audio Track:	1 track (normal-mono only), 2 channels (Hi-Fi sound-stereo)		
Video Horizontal Resolution:	Colour; more than 240 lines (SP)		
Signal-to-Noise Ratio:	Video; more than 43 dB (SP)		
Dynamic Range:	Audio; more than 90 dB (Hi-Fi audio track)		
Audio Frequency Response:	20 Hz–20 kHz		
Wow and Flutter:	0.005% Wrms/Hi-Fi		
Operating Temperature:	5°C–40°C		
Operating Humidity:	35%–80%		
Weight:	3.9 kg		
Dimensions:	430 (W)×87 (H)×306 (D) mm		
Standard Accessories:	1 pc. RF coaxial cable	1 pc. AC mains lead	
	1 pc. remote controller	1 pc. Audio/Video Cable	
	2 pcs. "R6" size batteries		

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Note to electrical appliance dealers only

To Demonstrate "Programme List Search"

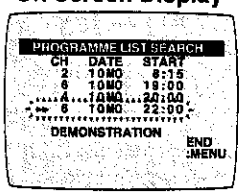
1 Eject a video cassette, if it has been inserted.

2 Keep pressing **SEARCH** on the remote controller for at least 5 seconds.

3 Then, the demonstration mode will be displayed on the TV screen.

SEARCH

On Screen Display



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